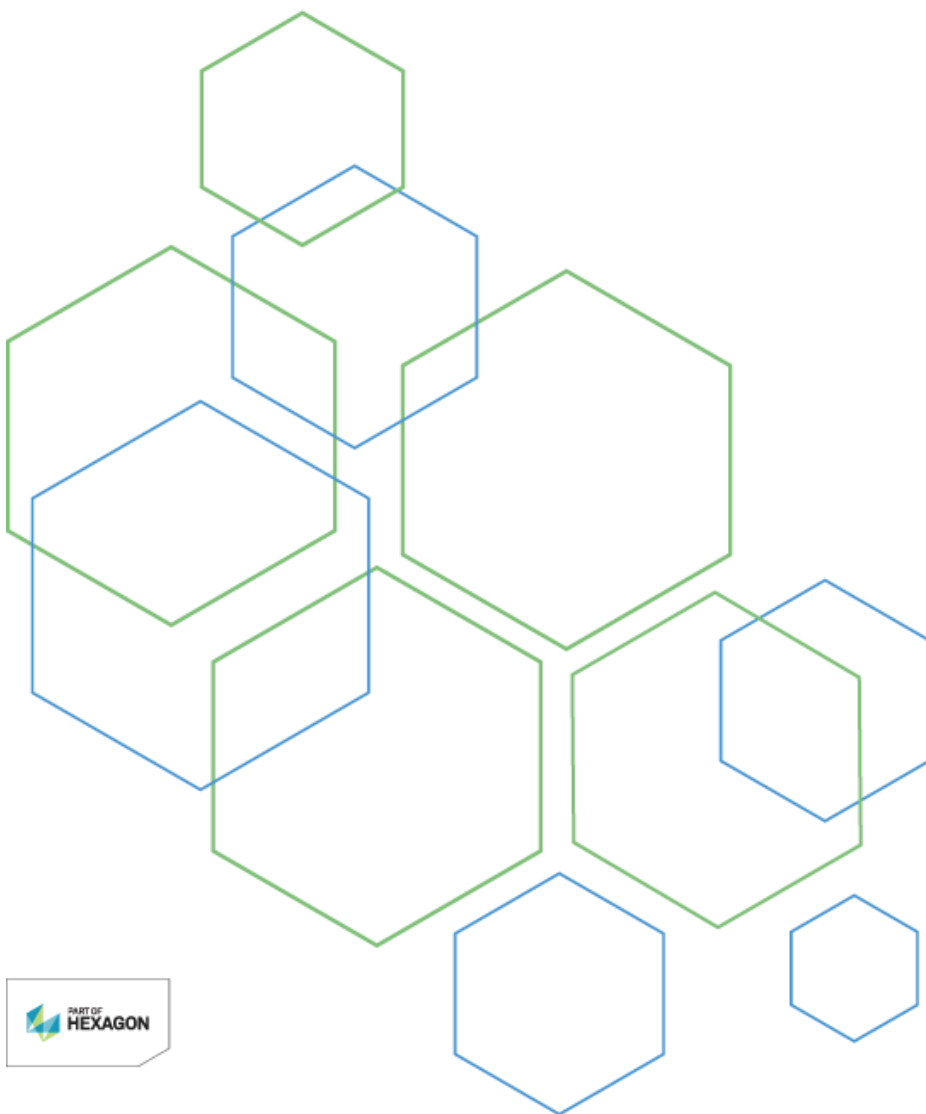


INTERGRAPH® *Smart* ➞ 3D

Export Smart 3D to PDS

User's Guide



Version 2016 (11.0)
November 2016

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Contents

Preface PDS Export Guide.....	7
What's New in PDS Export	8
Export to PDS Workflow	9
Points to Consider	11
Limitations when Exporting from Smart 3D to PDS.....	13
Preparing Smart 3D for Export.....	16
Export Options.....	16
Configure the PDS Export Initialization File	19
Export to PDS Dialog Box.....	22
Extract Tab (Export To PDS Dialog Box).....	22
Edit Tab (Export to PDS Dialog Box)	23
Generate Tab (Export to PDS Dialog Box)	23
Export Tab (Export To PDS Dialog Box)	24
Extract or Update a Hierarchy Mapping File	25
Export Structural Hierarchy from Smart 3D to PDS	26
Edit Hierarchy Mapping File	26
Hierarchy Mapping Workbook.....	27
Generate a PDS Project Configuration File	28
Export Smart 3D Models.....	28
Exporting Smart 3D HVAC Attributes to PDS	29
Exporting Smart 3D Electrical Attributes to PDS.....	32
Exporting Labels from Smart 3D to PDS	35
Preparing PDS for Import	37
Create the PDS Project.....	37
Define Matching Reference Data	38
Define Matching Model Seed Files.....	38
Create FrameWorks Plus Subprojects	38
Importing Data into PDS	41
Create Models from ASCII Files.....	41
Import Structural Data into FrameWorks Plus.....	42
CIS2Import.ma	42
Reference Equipment Models to Piping Models	44
Run Piping Model Builder.....	44
Appendix: Export to PDS Workbook.....	45
Equipment Translation Maps	45
EquipmentClassMap	46
CPSmartEquipmentMap	46

CPPipeNozzleMap	47
EqpGlobalsMap	48
Piping Translation Maps	49
PipingClassMap	50
PipeSegmentAttrsMap	50
PipePartAttrsMap	51
PipeComponentAttrsMap	52
PipeInstrumentAttrsMap	52
PipeSpecialtyAttrsMap	53
PipeSupportAttrsMap	54
PipingGlobalsMap	55
ComponentCommodityNames	56
EndPreparationPDSCodeListMap	57
ScheduleThicknessPDSCodeListMap	57
TapOptionCodeMap	57
DimensionalDataMapForSpecialty	58
DimensionalDataMapForInstrument	59
Structure Translation Maps	59
StructureClassMap	60
CSPSFootingMap	60
CSPSEquipFoundationMap	61
CSPSStairMap	61
CSPSLadderMap	62
CSPSHandrailMap	63
SPSWallPartMap	64
CStructCutoutContourMap	64
HVAC Translation Maps	65
HVACClassMap	65
HVACDuctPartAttrsMap	66
HVACDuctComponentAtrsMap	67
Electrical Translation Maps	67
RWAYClassMap	68
CableTrayOccurAttrsMap	68
ConduitOccurAttrsMap	69
CableTrayComponentAttrsMap	70
ConduitComponentAttrsMap	70
CablewayAttrsMap	71
Hierarchy Translation Maps	72
EquipmentHierarchy	72
PipingHierarchy	73
StructureHierarchy	74
StructuralEquipmentHierarchy	75
RaceWayHierarchy	75
HVACHierarchy	76
Codelist Translation Maps	77
ApprovalStatusCodeListMap	78
CleaningRequirementsCodeListMap	78
CoatingTypeCodeListMap	78
ConstructionStatusCodeListMap	78
DesignResponsibilityCodeListMap	79
DesignStandardCodeListMap	79

EqpDivisionCodeListMap	79
EndPreparationCodeListMap	79
EndStandardCodeListMap	80
FabricationCategoryCodeListMap	80
FluidCodeCodeListMap	80
GeometryStandardsCodeListMap	81
HeatTracingReqmntsCodeListMap	81
HeatTracingMediumCodeListMap	81
InstrumentModelCodeMap	81
InsulationPurposeCodeListMap	82
MaterialsGradeCodeListMap	82
OptionCodeCodeListMap	82
PipingCommodityTypeCodeListMap	83
ReportingTypeCodeListMap	83
ScheduleThicknessCodeListMap	83
StressRequirementsCodeListMap	84
SpecialtyModelCodeMap	84
WeldTypeCodeListMap	84
Index.....	86

Preface PDS Export Guide

This document describes exporting equipment, piping, HVAC, and structure model data from Smart 3D to Plant Design System (PDS®).

Documentation Comments

For the latest support information for this product, comments or suggestions about this documentation, and documentation updates for supported software versions, please visit *Intergraph Smart Support* (<https://smartsupport.intergraph.com>).

What's New in PDS Export

The following changes have been made to the PDS Export guide.

Version 2016 (11.0)

- You can now export electrical attributes to PDS. For more information, see *Exporting Smart 3D Electrical Attributes to PDS* (on page 32), *Export Options* (on page 16), and *Configure the PDS Export Initialization File* (on page 19). (P1 CP:227823)
- Formerly known as SmartPlant 3D (SP3D) and SmartMarine 3D (SM3D), the products are now integrated and rebranded as Smart 3D (S3D). Replaced all instances of SP3D and SM3D with S3D in this user's guide. (P1 CP:273062)
- Limitations that exist when exporting Smart 3D equipment nozzle and electrical data to PDS have been added. For more information, see *Limitations when Exporting from Smart 3D to PDS* (on page 13). (P2 CP:231271) (P3 CP:255748)
- Added a note to the general limitations regarding keeping all objects to export from Smart 3D within the PDS 26.8 km design file limit. For more information, see *Limitations when Exporting from Smart 3D to PDS* (on page 13). (P2 CP:248738)
- Added two settings, **Auto Transfer** and **PDS Project Name**, to the **Export Options** dialog box. For more information, see *Export Options* (on page 16). (P2 CP:262913)
- Updated the **Export to PDS** dialog box with new tabs, **Edit** and **Generate**, and new options. For more information, see *Export to PDS Dialog Box* (on page 22). (P2 CP:262913) (P2 CP:264351)
- Changed the name of **DimensionalDataMap** to *DimensionalDataMapForSpecialty* (on page 58). Changed the name of **SP3DIdentifierPDSModelCodeMap** to *SpecialtyModelCodeMap* (on page 84). Added the *DimensionalDataMapForInstrument* (on page 59) and *InstrumentModelCodeMap* (on page 81) sections. (P2 CP:262913) (P3 CP:248861)
- The **Export Settings** dialog box has been renamed to the **Export Options** dialog box. For more information, see *Export Options* (on page 16). (P2 CP:271676)
- Added a prerequisite to successfully export the piping components to PDS. For more information, see *Points to Consider* (on page 11). (P3 CP:242335)
- Added a note to specify the location of the PDS model folder in the **Export to PDS > Export Hierarchy** section. For more information, see *Generate a PDS Project Configuration File* (on page 28) (P3 CP:257796)
- The **PDSExportTranslator.ini** file has been updated with information related to Structure discipline. For more information, see *Configure the PDS Export Initialization File* (on page 19). (P4 CP:258844)
- Limitations that exist when exporting Smart 3D piping data to PDS have been added. For more information, see *Limitations when Exporting from Smart 3D to PDS* (on page 13). (P3 CP:252946) (P4 CP:268118)

SECTION 1

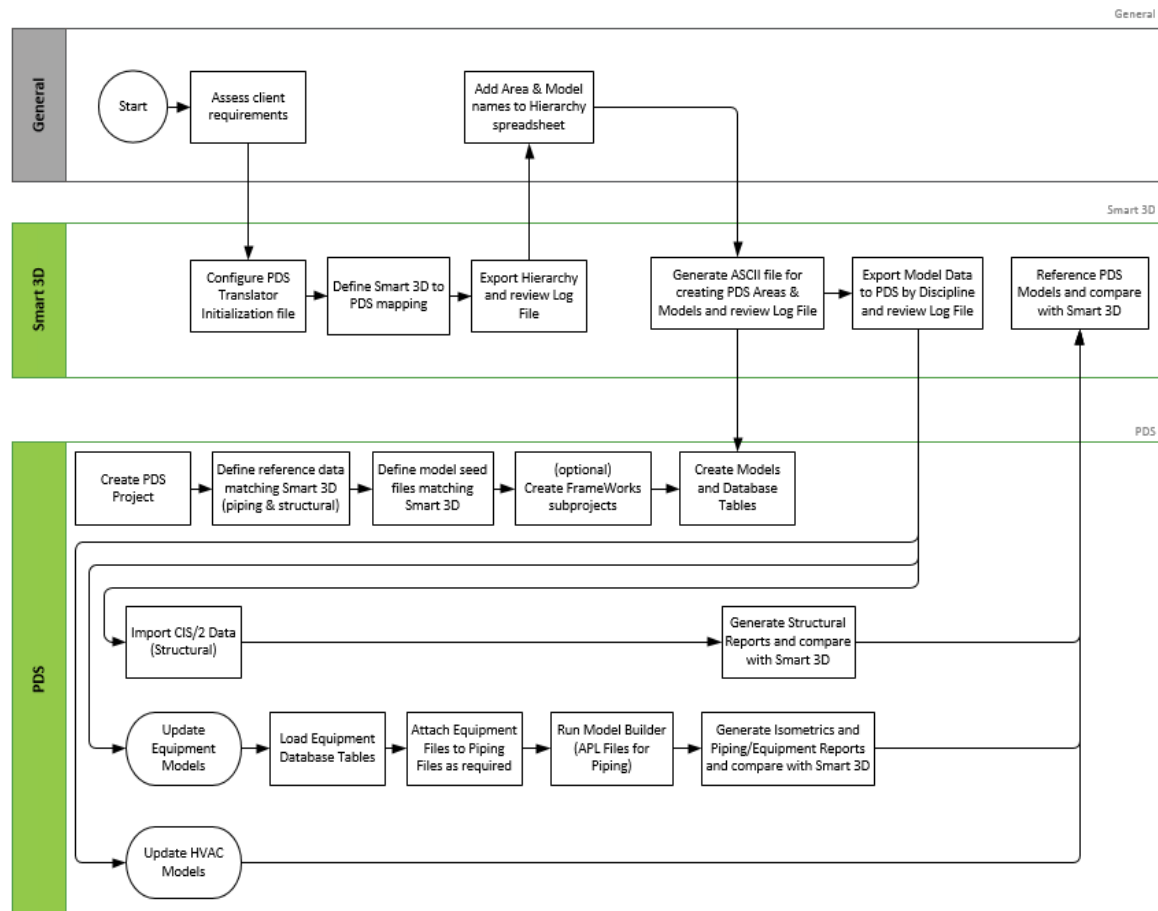
Export to PDS Workflow

You can export the following model data from Smart 3D to Plant Design System (PDS):

- Equipment
- Piping
- HVAC
- Structure
- Electrical

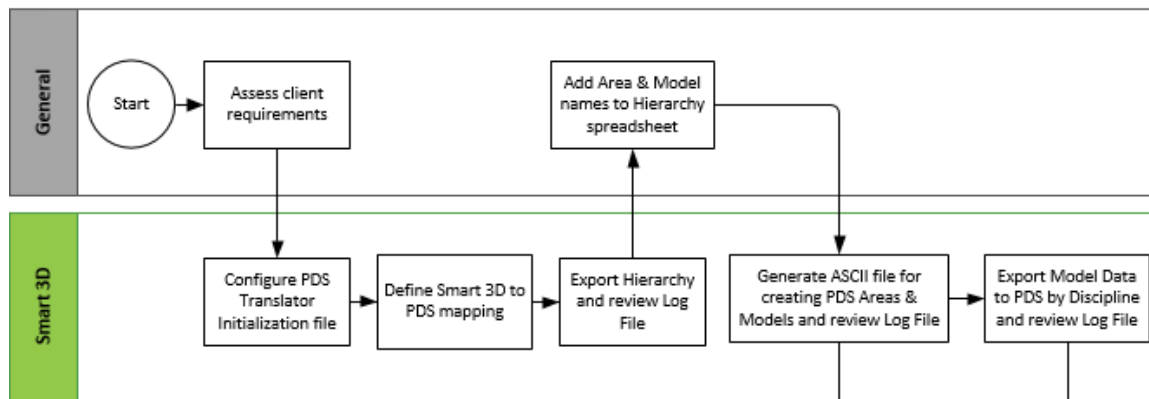
NOTES

- You must have a S3P license key installed on the SmartPlant License Server to use **PDS Export**.
- When you export model data from a system that uses a language other than English, all output files (such as .apl, .drv, and .dgn) are exported into English.



Exporting Model Data from Smart 3D

Transferring model data from Smart 3D to PDS involves the following:



Export Options (on page 16)

Exporting Labels from Smart 3D to PDS (on page 35)

Extract or Update a Hierarchy Mapping File (on page 25)

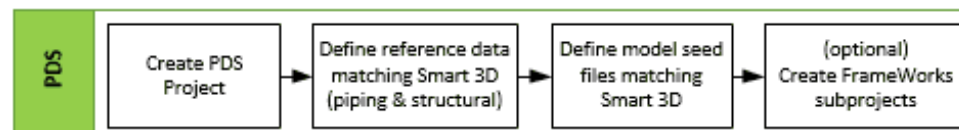
Hierarchy Mapping Workbook (on page 27)

Generate a PDS Project Configuration File (on page 28)

Export Smart 3D Models (on page 28)

Preparing PDS for Import

To get PDS ready to receive data from Smart 3D, you need to:



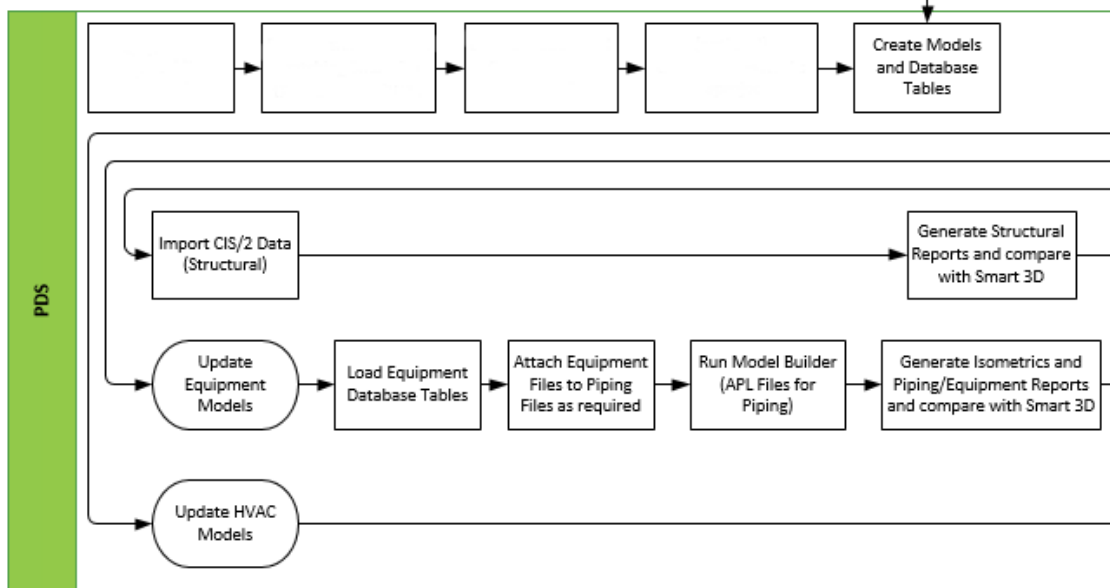
Create the PDS Project (on page 37)

Define Matching Reference Data (on page 38)

Define Matching Model Seed Files (on page 38)

Create FrameWorks Plus Subprojects (on page 38)

Importing Data into PDS



Create Models from ASCII Files (on page 41)

Import Structural Data into FrameWorks Plus (on page 42)

Reference Equipment Models to Piping Models (on page 44)

Run Piping Model Builder (on page 44)

Points to Consider

General

- To use the auto transfer, Intergraph recommends that you install PDS version 12.00.01.16 or higher. You must also install the **Smart3d PDS Data Access** component.

Reference Data and Catalog Data

- The catalog data must be the same for both Smart 3D and PDS for the export to yield correct results. For more information, see *Define Matching Reference Data* (on page 38).

Piping

- Stock parts in Smart 3D which do not meet the minimum pipe length criteria in PDS, result in a piping placement error after importing.
- You must resolve all Smart 3D To Do List items before exporting. Unresolved To Do List items can cause unexpected results in PDS. For example, pipe bends modeled incorrectly in Smart 3D might result in irrelevant graphics when imported.
- The number of pipelines created in PDS by the export process might be higher than the number of pipe runs exported from Smart 3D.
- The pipe part symbols and their default orientation should be same in Smart 3D and PDS.

- When you export spectacle blinds to PDS without setting the base part of the spectacle blind feature to either **spectacle blind is in open position** or **spectacle blind is in closed position**, the software creates an open blind in PDS by default.
- Flex pipes from Smart 3D are exported to PDS as specialty items. To map the Smart 3D identifier value of this pipe part with PDS Model Code in the **SpecialtyModelCodeMap** worksheet, the S3D Identifier value should be defined by the S3D short code value followed by "_FlexPipe".
- You must define the Commodity class to successfully export the piping components to PDS. Commodity class can be defined in the property page of an object in Smart 3D.

Dimensional Data Mapping

- For a Smart 3D piping specialty or instrument, you must define or create a corresponding specialty symbol in PDS. The symbol must be designed so that any dimensional data (DIM1, DIM2, and so on through DIMn) required to place the piping specialty or instrument in PDS can be mapped to the attribute data on the Smart 3D specialty object.
- You must map the Smart 3D specialty tag or part number of the piping specialty or instrument in the mapping file to corresponding PDS commodity name in the **SpecialtyModelCodeMap** and **InstrumentModelCodeMap** worksheets.
- Map the tutorial form name for the piping specialty or instrument to the **TUT** attribute in the **DimensionalDataMapMapForSpecialty** and **DimensionalDataMapForInstrument** worksheets. Map the rest of the dimensions to appropriate Interface.Attribute values. You must refer to the symbol definitions in both Smart 3D and PDS to decide which dimension to map to which Interface.Attribute.
- The following figure is an example of dimensional-data mapping for the piping specialty STRB1 (Basket Strainer) which is mapped to the **CSBasketStrainer4** specialty in Smart 3D.

PDS Value	Attribute Name	Attribute Value
STRB1		
	TUT	PSA018
	DIM1	[IJUASpecialtyStrainer.CollarThickness]
	DIM2	[IJUASpecialtyStrainer.BasketLength]
	DIM3	[IJUASpecialtyStrainer.BasketEndDiameter]
	DIM4	[IJUASpecialtyStrainer.CollarEndtoCenter]

The tutorial form that accepts the dimensional data input for STRB1 is PSA018.fb.

DIM1=Dimension **A**, which is equal to the CollarThickness attribute available on the IJUASpecialtyStrainer interface of the CBasketStrainer specialty in Smart 3D.

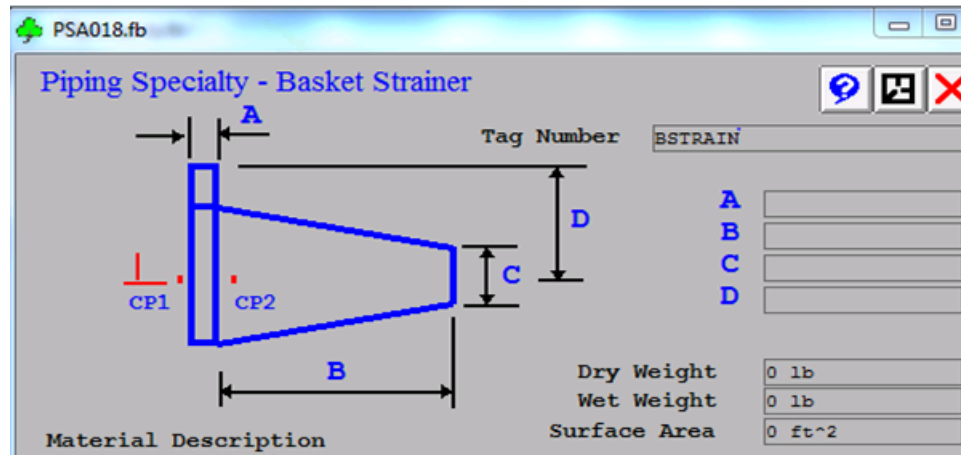
Similarly,

DIM2=Dimension **B** = BasketLength attribute on the IJUASpecialtyStrainer interface,

DIM3=Dimension **C** = BasketEndDiameter attribute on the same interface,

DIM4=Dimension **D** = CollarEndToCenter attribute on the same interface.

NOTE Interface. Attribute must be surrounded by square braces as shown above.



Taps

- Load the taps' data into the PDS project to ensure that the taps are imported through the APL file correctly.

Limitations when Exporting from Smart 3D to PDS

The following limitations exist when exporting Smart 3D equipment, equipment nozzles, piping, structure model, and electrical data and then importing that data into PDS.

General

- Smart 3D object names with some special characters such as € or \$ might not transfer with exactly the same name because the export functionality uses some of these characters for the syntax of the functionality. The possibility exists that such names will not match on both sides of the export.
- The design file limit in PDS is 26.8 kilometers. Smart 3D objects that you have placed further than 26.8 km from the global coordinate system origin export successfully to the design file. However, the design file will not open in PDS. Before starting the export process, make sure that the modeled objects are within the PDS design file limits.

Equipment

PDS has a 30-character limit for equipment names, so the equipment name in Smart 3D cannot be longer than 30 characters. If the name of the equipment component is more than 30 characters, it is truncated during the export from Smart 3D.

NOTE PDS does not support duplicate names for equipment items. You must assign a unique name for each equipment in Smart 3D. Duplicate names in Smart 3D, or duplicate names after truncation, can cause the export process to give incorrect results.

Equipment Nozzle

- PDS has a 10-character limit for nozzle names, so the nozzle component name in Smart 3D cannot be longer than 10 characters.

- PDS allows duplicate names for nozzle components, as long as the nozzle components are assigned to different equipment items in the same .dgn file. Otherwise, the export process might display incorrect results.
- Equipment piping nozzles are exported with connect point data. HVAC nozzles, and electrical nozzles such as cable nozzles, cable tray nozzles, and conduit nozzles are not exported.

Piping

- PDS has a 20-character limit for piping component/support names, so the piping component/support name in Smart 3D cannot be longer than 20 characters. If the name of the piping component/support is more than 20 characters in Smart 3D, it is truncated during export. Similarly, piping specialty and instruments are limited to 30 characters and will also be truncated if needed. PDS allows for duplicate names for piping, support components, and instruments and specialties.
- If an equipment or nozzle name is not defined in Smart 3D, the connection between any pipe run and that pipe nozzle is lost when the model is exported to PDS. In this situation, the pipe run starts from the connect point (the East, North, and Elevation coordinates) of the nozzle port without having any connection.
- PDS does not support modeling of circular piping. Because of this, circular stock parts are skipped. The software writes an entry in the log file for each circular stock part.
- Do not export pipelines with both imperial and metric specifications to the same APL file.
- Supports that are placed at a location other than the elbow connect points are exported as connected to the elbow's center.
- Only the specification driven attributes for pipes are transferred to sloped pipe runs.
- To construct pipes on the sloped pipe segments, import the APL file and then enable the **Automated Placement** in PDS.
- In Export Smart 3D to PDS application, insulation thickness is valid only when you define the insulation purpose. Define the insulation purpose in Smart 3D before you export the insulation data using Export Smart 3D to PDS application.
- You can define insulation in at run level and at the component level in Smart 3D. By default, the same insulation data is applicable to components. The export process exports only the insulation data at run level. The component level insulation is ignored. However, in case of Instruments and Specialties, the component level insulation is considered.
- The **Commodity Names** sheet in the mapping file maps the Smart 3D short code **S3D Value** and PDS commodity names short code **PDS Value**. To export turn features such as Elbow, Bend, Miter, and so on, append <_PIPE TURN TYPE> to the **S3D Value**.

For example, to export an **Elbow** with a short code **45 Degree Direction Change**, the **S3D Value** is **45 Degree Direction Change_ELBOW**.
- The Export to PDS software exports all the S3D piping supports to PDS as logical supports.
- PDS does not support feature breaks on the pipe stock parts. Feature breaks are skipped and the following message is added to the log file for each feature break:

Feature breakdown is not supported in PDS, hence exporting it as stock part.
- The software exports flex pipes from Smart 3D as specialty items.
- The flow direction, **NOFLOW**, of a pipe run or pipeline is exported as **UNDEFINED**.

- The Smart 3D sequence number attribute on pipe runs is not automatically exported to PDS. You can use label mapping to export sequence numbers on pipe runs. PDS has a 16-character limit for pipe run and pipeline sequence numbers, so the mapped label value of the pipe run or pipeline sequence number in Smart 3D cannot be longer than 16 characters. A mapped value longer than 16 characters in Smart 3D is truncated during export.

Structure

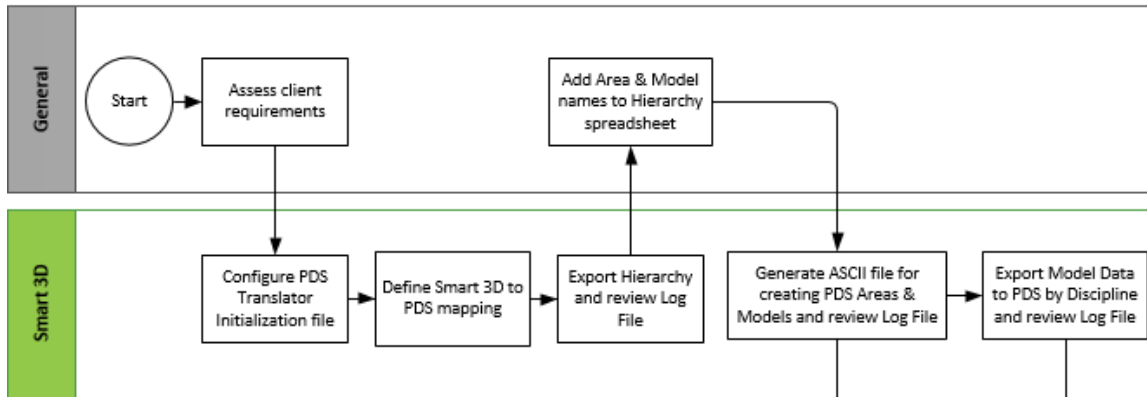
- FrameWorks Plus has a 24-character limit for all structure components, including beams, slabs, columns, vertical and horizontal braces, walls, and arc members. If the name of the structure component in Smart 3D is more than 24 characters, it is truncated during export. FrameWorks Plus allows for duplicate names for structural components.
- Slabs and solids are limited to 95 vertices (placement defining points).
- Openings are not supported on linear or arc members.
- FrameWorks Plus supports only circular arc members. Arc members that are created by elliptical arcs are not supported.
- FrameWorks Plus supports only slabs or slab openings that are created by circular, elliptical, and linear elements.
- Smart 3D does not export assembly connections to the CIS/2 file. Therefore, connection details and assembly connections are not imported into FrameWorks Plus.

Electrical

Cable object does not have any persistent graphics in Smart 3D. Hence these objects are not exported to PDS.

SECTION 2

Preparing Smart 3D for Export



In This Section

Export Options.....	16
Export to PDS Dialog Box.....	22
Extract or Update a Hierarchy Mapping File	25
Edit Hierarchy Mapping File	26
Generate a PDS Project Configuration File	28
Export Smart 3D Models	28
Exporting Smart 3D HVAC Attributes to PDS	29
Exporting Smart 3D Electrical Attributes to PDS	32
Exporting Labels from Smart 3D to PDS	35

Export Options

The **File > Export > PDS Export > Export Options** command edits the [Product Folder]\Smart3D\3DRefData\SharedContent\Data\Translators\S3DPDSEExport\PDSEExportTranslator.ini file. You can also edit the PDSEExportTranslator.ini file directly with any ASCII file editor.

Global

The Global settings are used to define the MicroStation symbology for each Smart 3D display aspect.

Auto Transfer

Automatically generates areas and models on export, and loads the piping and structure files to their corresponding .dgn files. This option is cleared by default. You must have at least two **S3P** keys to successfully export a piping model using this option.

PDS Project Name

Select the PDS project name to which to transfer Smart 3D data. This option is available only if you select **Auto Transfer**.

Aspect

Select the Smart 3D aspect for which to define MicroStation symbology.

Level

Type the MicroStation level for the selected aspect. Valid levels are 1 to 63.

Color

Select a color for the selected aspect.

Weight

Type the MicroStation line weight for the selected aspect. Valid weights are 0 to 31.

Style

Select the MicroStation line style for the selected aspect.

Equipment**Number of Equipment per Model**

Type the maximum number of equipment to put into a single MicroStation design file (.DGN).

Piping**Number of Pipelines per Model**

Type the maximum number of pipelines to put into a single Alphanumeric Piping Language (APL) file.

Structure**Number of Structures per Model**

Type the maximum number of structural objects (beams, columns, braces, and slabs) to put into a single CIS/2 file.

Number of Structural Equipment per Model

Type the maximum number of walls, ladders, and stairs to put into a single equipment MicroStation design file (.DGN).

Object Type

Select the Smart 3D aspect for which to define MicroStation symbology.

Level

Type the MicroStation level for the selected aspect. Valid levels are 1 to 63.

Color

Select a color for the selected aspect.

Weight

Type the MicroStation line weight for the selected aspect. Valid weights are 0 to 15.

Style

Select the MicroStation line style for the selected aspect.

HVAC

Number of HVAC Ducts per Model

Type the maximum number of ducts per MicroStation design file (.DGN).

Object Type

Select the Smart 3D aspect for which to define MicroStation symbology.

Level

Type the MicroStation level for the selected aspect. Valid levels are 1 to 63.

Color


Select a color for the selected aspect.

Weight

Type the MicroStation line weight for the selected aspect. Valid weights are 0 to 15.

Style

Select the MicroStation line style for the selected aspect.

 **NOTE** When you export HVAC objects, the symbology defined for the **Simple_Physical** aspect is overwritten by the symbology defined for the following HVAC objects:

- Duct parts - **DUCT_SYMBLOGY**
- Duct components - **DUCT_COMPONENT_SYMBLOGY**

Electrical

Number of Cableways and Conduits per Model

Type the maximum number of cableways and conduit runs to put into a single MicroStation design file (.DGN).

Object Type

Select the Smart 3D aspect for which to define MicroStation symbology.

Level

Type the MicroStation level for the selected aspect. Valid levels are 1 to 63.

Color


Select a color for the selected aspect.

Weight

Type the MicroStation line weight for the selected aspect. Valid weights are 0 to 31.

Style

Select the MicroStation line style for the selected aspect.

 **NOTE** When you export electrical objects, the symbology defined for the **Simple_Physical** aspect is overwritten by the symbology defined for the following electrical objects:

- Cable tray parts - **CABLE_TRAY_SYMBLOGY**
- Cable tray and conduit components - **ELECTRICAL_COMPONENT_SYMBLOGY**

- Conduit parts - **CONDUIT_SYMBLOGY**
- Cableway features and duct banks - **CABLEWAY_SYMBLOGY**

Configure the PDS Export Initialization File

The **PDSExportTranslator.ini** file controls the export of Smart 3D model data to PDS. You can modify the default values to suit your specific project requirements.

1. In Windows Explorer, browse to the [*Product Folder*]\Smart3D\3DRefData\SharedContent\Data\Translators\S3DPDSExport folder.
2. Open the **PDSExportTranslator.ini** file, and modify the options as required.
3. Save your changes.

NOTES

- You can edit this file in Smart 3D using **File > Export > PDS Export > Export Options**.
- SharedContent is delivered in the reference data setup.

PDS Export Initialization File Options

The **PDSExportTranslator.ini** file is divided based on the discipline, such as equipment, piping, structure, and so on. Each section contains a specific set of default options that are used during export.

GLOBALS

In general, .ini options in the global section are applicable to all disciplines. The following options are used for setting the symbology for aspects of the following disciplines.

- Equipment
- HVAC
- Structure

Type the aspect name using the prefix "ASPECT_"

Example:

If the aspect name is SHADOW, add an entry in the initialization file as ASPECT_SHADOW. Give the symbology values in the following order. **Color** (R, G, B), **Level**, **Weight**, **Style**.

- **RGB** - Type a value are from 0 to 255.
- **LEVEL** - Type a value from 1 to 63.
- **WEIGHT** - Type a value from 0 to 15.
- **STYLE** - Type a value from 0 to 7.

ASPECT_SHADOW = 0,0,0,1,3,1 (That is, black color, level 1, weight 3, and style 1.)

The following aspects are in the ini file.

```
ASPECT_DETAILED PHYSICAL      = 255,127,0,4,3,0
ASPECT_INSULATION             = 180,0,180,3,3,1
ASPECT_OPERATION              = 0,254,160,5,3,1
ASPECT_MAINTENANCE            = 0,240,240,6,3,1
ASPECT_REFERENCE GEOMETRY     = 0,0,255,7,3,1
ASPECT_CENTERLINE             = 255,0,0,8,3,1
```

If you select **Auto Transfer** on the **Export Options** dialog box, and if you set **Discipline** to **Structure**, you can provide the cross-section mapping files, which are then loaded to DGN files using Intergraph Batch Manager.

If you select **Auto Transfer**, and if you set **Discipline** to **Piping**, the generated APL file is loaded to DGN files using Intergraph Batch Manager.

EQUIPMENT

NumberOfEquipmentPerModel

Specifies the number of equipment per PDS model or design file. Type a positive, non-zero value. The default value is 500.

PIPING

NumberOfPipeLinesPerModel

Specifies the number of pipe lines per PDS model or design file. Type a positive, non-zero value. The default value is 150.

STRUCTURE

NumberOfStructuresPerModel

Specifies the number of structures per PDS model or design file. Type a positive, non-zero value. The default value is 500.

NumberOfStructuralEquipmentsPerModel

Specifies the number of structural equipments per PDS model or design file. Type a positive, non-zero value. The default value is 500.

WALL_SYMBOLGY

Specifies the symbology for structural wall components. The symbology displays the values for the color, level, weight, and style, in that order. The default values are as follows:

- **Color** - 0, 232, 232
- **Level** - 1
- **Weight** - 3
- **Style** - 0

WALL_OPENING_SYMBOLGY

Specifies the symbology for structural wall opening components. The symbology displays the values for the color, level, weight, and style, in that order. The default values are as follows:

- **Color** - 255, 255, 0
- **Level** - 2
- **Weight** - 3
- **Style** - 0

HVAC

NumberOfHVACDuctsPerModel

Specifies the number of HVAC runs per PDS model or design file. Type a positive, non-zero value. The default value is 500.

DUCT_SYBOLOGY

Specifies the symbology for ducts. Type the values for symbology in the following order: Color (R, G, B), Level, Weight, Style. The default values are 255,255,255,1,3,0. That is, White color, level 1, weight 3 and style 0.

DUCT_COMPONENT_SYBOLOGY

Specifies the symbology for duct components. Type the values for symbology in the following order: Color (R, G, B), Level, Weight, Style. The default values are 0,150,0,1,3,0. That is, Green color, level 1, weight 3 and style 0.

ELECTRICAL

NumberOfCablewaysAndConduitsPerModel

Specifies the number of cableways and conduit runs per PDS model or design file. Type a positive, non-zero value. The default value is 500.

CABLE_TRAY_SYBOLOGY

Specifies the symbology for cable tray parts. The symbology displays the values for the color, level, weight, and style, in that order. The default values are as follows:

- **Color** - 255, 155, 0
- **Level** - 10
- **Weight** - 1
- **Style** - 0

ELECTRICAL_COMPONENT_SYBOLOGY

Specifies the symbology for electrical components. The symbology displays the values for the color, level, weight, and style, in that order. The default values are as follows:

- **Color** - 232, 232, 11
- **Level** - 11
- **Weight** - 1
- **Style** - 0

CABLEWAY_SYBOLOGY

Specifies the symbology for cableway features and ductbanks. The symbology displays the values for the color, level, weight, and style, in that order. The default values are as follows:

- **Color** - 204, 204, 204
- **Level** - 12
- **Weight** - 1
- **Style** - 0

CONDUIT_SYMBOLGY

Specifies the symbology for conduit parts. The symbology displays the values for the color, level, weight, and style, in that order. The default values are as follows:

- **Color** - 100, 133, 210
- **Level** - 13
- **Weight** - 1
- **Style** - 0

Export to PDS Dialog Box

Controls parameters for exporting Smart 3D model data to PDS.

- *Extract Tab (Export To PDS Dialog Box)* (on page 22)
- *Edit Tab (Export to PDS Dialog Box)* (on page 23)
- *Generate Tab (Export to PDS Dialog Box)* (on page 23)
- *Export Tab (Export To PDS Dialog Box)* (on page 24)

Extract Tab (Export To PDS Dialog Box)

Exports or updates a hierarchy for Smart 3D systems to the hierarchy mapping file.

For example, if you want to export Equipment, **Extract** finds the object ID for each system that contains equipment objects, finds those equipment objects, and exports or updates that hierarchy to the mapping file.

- The **EquipmentHierarchy** sheet in the mapping file is updated with the hierarchy of the Smart 3D systems for the equipment discipline.
- In the same way, worksheets for each discipline are updated at the time of hierarchy export. The **PipingHierarchy**, **ElectricalHierarchy**, **StructureHierarchy**, **StructuralEquipmentHierarchy**, and **HVACHierarchy** sheets are updated for their respective disciplines.
- For piping, the pipeline systems, the OID and number of pipe runs under that system are exported to the hierarchy mapping file.

Discipline

Specifies the discipline (such as piping or equipment) for which to export the hierarchy. You can select a discipline from the list.



Export Options

Opens the **Export Options** dialog box. For more information, see *Export Options* (on page 16).

Mapping File

Specifies the mapping file to use in the export process. The mapping file is a Microsoft Excel workbook that is used to extract or update Smart 3D hierarchy information. Templates of hierarchy mapping sheets are delivered with the mapping file. The mapping file is delivered to the [Reference Data Folder]\SharedContent\Data\Translators\S3DPDSEExport folder. You can copy the mapping sheets to another workbook to create your own hierarchy mapping file.

Log file

Specifies the location and file name for logging process information. Click **View Log** to view the log file.

Extract

Extracts or updates the hierarchy as specified.

View Log

Displays the log file. This is only available after you click **Extract**.

Edit Tab (Export to PDS Dialog Box)

Allows you to edit the hierarchy mapping file for area and model entries. For example, you can edit the piping sheet by setting **Discipline** to **Piping**, and then providing the corresponding hierarchy mapping file.

Discipline

Specifies the discipline (such as piping or equipment) for which to export the hierarchy. You can select a discipline from the list.



Export Options

Opens the **Export Options** dialog box. For more information, see *Export Options* (on page 16).

Mapping File

Specifies the mapping file to use in the export process. The mapping file is a Microsoft Excel workbook that is used to extract or update Smart 3D hierarchy information. Templates of hierarchy mapping sheets are delivered with the mapping file. The mapping file is delivered to the [Reference Data Folder]\SharedContent\Data\Translators\S3DPDSEExport folder. You can copy the mapping sheets to another workbook to create your own hierarchy mapping file.

Edit

Opens the specified mapping file.

Generate Tab (Export to PDS Dialog Box)

Generates the PDS configuration file.

Discipline

Specifies the discipline (such as piping or equipment) for which to export the hierarchy. You can select a discipline from the list.

**Export Options**

Opens the **Export Options** dialog box. For more information, see *Export Options* (on page 16).

PDS Project Name

Displays the project name as specified in **Export Options** .

PDS Model Directory

Specifies the model folder. You can type the network path, or navigate to it. When you set **Discipline** to **Structure**, the PDS Model Directory is the parent folder of the FWP Sub Project directory. This information is updated in the hierarchy mapping file and used when you export the model.

Mapping File

Specifies the mapping file to use in the export process. The mapping file is a Microsoft Excel workbook that is used to extract or update Smart 3D hierarchy information. Templates of hierarchy mapping sheets are delivered with the mapping file. The mapping file is delivered to the [Reference Data Folder]\SharedContent\Data\Translators\S3DPDSExport folder. You can copy the mapping sheets to another workbook to create your own hierarchy mapping file.

PDS Project Configuration File

Specifies the location and file name of the ASCII file. This file is used in PDS when creating areas and models with **Create Model Data Using ASCII File**. For more information, see *Configure the PDS Export Initialization File* (on page 19).

Log file

Specifies the location and file name for logging process information. Click **View Log** to view the log file.

FWP Sub Project

Specifies the sub project number for FrameWorks Plus projects. This setting is only available if **Discipline** is set to **Structure**.

Generate

Generates an ASCII file as specified, and updates the hierarchy mapping file with the PDS model folder information.

View Log

Displays the log file. This is only available after you click **Generate**.

View Config

Displays the generated ASCII file. This is only available after you click **Generate**.

Export Tab (Export To PDS Dialog Box)

Exports model data to PDS.

Discipline

Specifies the discipline (such as piping or equipment) for which to export the hierarchy. You can select a discipline from the list.



Export Options

Opens the **Export Options** dialog box. For more information, see *Export Options* (on page 16).

Mapping File

Specifies the mapping file to use in the export process. The mapping file is a Microsoft Excel workbook that is used to extract or update Smart 3D hierarchy information. Templates of hierarchy mapping sheets are delivered with the mapping file. The mapping file is delivered to the [Reference Data Folder]\SharedContent\Data\Translators\S3DPDSExport folder. You can copy the mapping sheets to another workbook to create your own hierarchy mapping file.

Log file

Specifies the location and file name for logging process information. Click **View Log** to view the log file.

Use Cross Section Mapping File

Exports structural members to the mapping file used to import structural objects in PDS. This mapping file is the same file used to import structural objects through CIS/2 in PDS. This option is available only if you set **Discipline** to **Structure** and if auto transfer is enabled.

Export

Exports the model as specified.

View Log

Displays the log file. This is only available after you click **Export**.

Extract or Update a Hierarchy Mapping File

★IMPORTANT

- Close the mapping workbook that you need to update before you run **Extract**.
- Define your workspace before exporting.
- 1. Click **File > Export > PDS Export > Export Model**.
*The **Export to PDS** dialog box displays.*
- 2. Click the **Extract** tab, and select the discipline from the **Discipline** list.
- 3. Type the location of the mapping file in the **Mapping File** box, or browse to the location.
TIP The default mapping file is delivered to the [Reference Data Folder]\Data\Translators\S3DPDSExport folder.
- 4. Type the location of the log file in the **Log File** box, or browse to the location.
- 5. Click **Extract**.
The mapping file is extracted or updated, as specified.
- 6. Click **View Log** to review the log file for any errors or warnings.
After the file is extracted, the Edit tab on the Export to PDS dialog box automatically displays.

Export Structural Hierarchy from Smart 3D to PDS

To extract the Smart 3D structural hierarchy to PDS:

1. In the Smart 3D Structure task, create structural objects in the needed hierarchy on the **System** tab of the **Workspace Explorer**.

 **NOTE** For more information about creating structure, see the *Structure User's Guide*.

2. Click **File > Export > PDS Export > Export Model**.

*The **Export to PDS** dialog box displays.*

3. On the **Extract** tab, select the **Structure** discipline from the **Discipline** list.
4. In the **Mapping File** box, type the location of the **S3DPDSEExport.xls** mapping file, or browse to the location. This workbook is delivered to the *[Reference Data Folder]\SharedContent\Data\Translators\S3DPDSEExport* folder.
5. Type the location of the log file in the **Log File** box, or browse to the location.
6. Click **Extract**.

*The structural hierarchy for members, slabs, and slab openings is exported to the **StructureHierarchy** mapping sheet in the **S3DPDSEExport.xls** workbook.*

*The structural hierarchy for footings, foundations, walls, wall openings, and traffic structural objects is exported to the **StructuralEquipmentHierarchy** mapping sheet in the **S3DPDSEExport.xls** workbook.*

7. Click **View Log** to review the log file for any errors or warnings.

NOTES

- Footings, foundations, walls, traffic structural objects, and equipment foundation member parts or systems are exported to a .dgn design file. Other structural objects are exported to a CIS/2 .stp file.
- You must define design file names in both mapping sheets to create the .dgn files in PDS.
- When generating the PDS project configuration file, you must define the FWP Sub Project number for structure. In addition, you can customize the Model_Type in the PDS model creation ASCII configuration file based on this requirement. By default, Model_Type is *both* and allowable values are *propagated* and *both*.

Edit Hierarchy Mapping File

1. Click **File > Export > PDS Export > Export Model**.

*The **Export to PDS** dialog box displays.*

2. On the **Edit** tab, select the discipline from the **Discipline** list.
3. In the **Mapping File** box, type the location of the **S3DPDSEExport.xls** mapping file, or browse to the location. This workbook is delivered to the *[Reference Data Folder]\SharedContent\Data\Translators\S3DPDSEExport* folder.
4. Click **Edit**.

The mapping file displays.

5. Edit the hierarchy mapping file, and then save and close the file.

The **Generate** tab on the **Export to PDS** dialog box automatically displays.

Hierarchy Mapping Workbook

Define the following columns in the hierarchy mapping workbook:

- **Area Name**
- **Area Description**
- **Model Name**
- **Model Description**

Defined area names and model names are used to generate a PDS project configuration file. This file creates the defined areas and models in PDS.

Area Name - Type up to ten characters for the name of the design area to be created or defined. You can use the underscore (_) character, capital letters (A-Z), lowercase letters (a-z), and numbers (0-9) in design area names. Design area names must not contain embedded spaces or other special characters such as, but not limited to, ^&#%\$. The name must be unique across disciplines (for example, Area Name: Piping_A).

If you specify an area name for one system but do not specify the area name for subsequent systems, then the software uses the same area name for all systems.

Area Description - Type up to 40 characters for this required description of the design area you are creating. If you do not define a value, the **Area Name** is used as the default description (for example, Area Desc: Piping Area A).

Model Name - Type up to ten characters for the name of the design file to create or define. You can use the underscore (_) character, capital letters (A-Z), lowercase letters (a-z), and numbers (0-9) in model names. Model names must not contain embedded spaces or other special characters such as, but not limited to, ^&#%\$. The name must be unique across the project (for example, Model Name: Model_A).

Model Description - Type an optional 40 character description of the model to create. If you do not define a value, then **Model Name** is used as the default description (for example, Model Desc: Model A Description).

TIPS

- For successful creation of areas and models using **Create Model Data From ASCII File** in PDS, we suggest that you use the first three letters of the discipline followed by a number (for example, for piping, Area Name: Pip1). Specify the model name as the area name followed by the character 'M' and a number (For example, Model Name: Pip1M1).
- The **number of objects** column in the hierarchy mapping sheet helps to define the number of models.
- Cautiously define the models so that the total number of objects that go into each model is less than or equal to the object limit per model (for equipment - NumberOfEquipmentsPerModel, for piping - NumberOfPipeLinesPerModel) in the configuration (.ini) file. For more information, see *Configure the PDS Export Initialization File* (on page 19).

MicroStation does not support DGN or SAT files that are more than 32 MB in size. If a SAT file is larger than 32 MB, split the SAT file into smaller components.

NOTE If the number of objects exceeds the objects limit per model in the configuration file, then the software creates a suitable number of models to accommodate all the objects and logs the information in the log file.

Example:

If the Hierarchy mapping file specifies that 100 equipment objects should go into eqp1M1, and the configuration file has **NumberOfEquipmentsPerModel** defined as 20, then four design files are created with the names eqp1M1_1, eqp1M1_2, eqp1M1_3, eqp1M1_4. Additionally, the first twenty objects (sorted by creation date) are exported to eqp1M1, the next twenty objects to eqp1M1_1, and so on.

Generate a PDS Project Configuration File

1. Click **File > Export > PDS Export > Export Model**.

*The **Export to PDS** dialog box displays.*

2. Click the **Generate** tab, and select the discipline from the **Discipline** list.
3. Type the location of the PDS model folder in the **PDS Model Directory** box, or browse to the location.

NOTES

- Structure equipment .dgn files are created as specified in the PDS Model folder.
 - If **Discipline** is set to **Electrical**, type the location of the PDS design folder in the standalone project, or browse to the location. After specifying the location, the standalone project can access the design file. For example, if the path of the standalone project is C:\PDSA\EE\ee.prj, then browse to C:\PDSA\EE\ee.prj\rway\dgn. For a PD_Shell electrical project, you can browse to any location, because PD_Shell locates and accesses those design files.
4. Type the location of the mapping file in the **Mapping File** box, or browse to the location.
 5. Type the location of the ASCII file to create in the **PDS Configuration File** box, or browse to the location.
 6. Type the location of the log file in the **Log File** box, or browse to the location.
 7. If **Discipline** is set to **Structure**, type the subproject number in **FWP Sub Project** box.
 8. Click **Generate**.

*The software generates an ASCII file as specified, and updates the hierarchy mapping file with the PDS model folder information. If the generation is successful, the **Export** tab on the **Export to PDS** dialog box automatically displays.*

You can use this ASCII file later in *Create Models from ASCII Files* (on page 41).

Export Smart 3D Models

1. Click **File > Export > PDS Export > Export Model**.

*The **Export to PDS** dialog box displays.*

2. Click the **Export** tab, and select the discipline from the **Discipline** list.
3. Type the location of the mapping file in the **Mapping File** box, or browse to the location.

4. Type the location of the log file in the **Log File** box, or browse to the location.
5. Click **Export**.
6. Review the log files for errors and warnings.
7. Repeat this procedure for each discipline that you need to export.

★ **IMPORTANT** You must have MicroStation J installed on the same computer as Smart 3D when you export the model data for equipment, HVAC, and structural equipment. The export of structural data to CIS/2 and piping data to APL does not require MicroStation J.

Exporting Smart 3D HVAC Attributes to PDS

Unlike Equipment and Piping, HVAC does not have equivalent PDS classes to which you can map the Smart 3D class when you export the attributes. All the attributes of Duct parts and Duct components (with some limitations) are written directly to a .drv file. While writing attributes to the .drv file, the software reads the Property mapping file (**S3DPDSExport.xls**) to process the attributes.

CLASS MAP

The Smart 3D classes **CPDuctOccur** (DUCT) and **CPRteDuctComponentOcc** (DUCT_COMPONENTS) are mapped to the virtual class **HVACDrv**.

HVACClassMap:

Use a "!" To comment out entire line	S3D Class Name	PDS Class Name	Attributes Sheet
!	<i>User should not change or edit the values in this sheet</i>		
Start			
	CPDuctOccur	HVACDrv	HVACDuctPartAttrMap
	CPRteDuctComponentOcc	HVACDrv	HVACDuctComponentAttrMap
End			

ATTRIBUTE MAP:

All the attributes to export to PDS are mapped in attribute mapping sheets, such as the **HVACDuctPartAttrsMap** and **HVACDuctComponentAttrsMap** sheets. PDS attribute columns have HVACDrv.AttributeName. **HVACDrv** indicates that this is an attribute in the virtual class **HVACDrv**.

Use a "!" To comment out entire line	Smart 3D Attribute	PDS Attribute	MapType	SheetName	Formula	Value	Label	Ignore
!	<i>User can add new values or edit existing values in this sheet</i>							
Start								
	UNamedItem.Name	HVACDrv.Name						
	UConstructionInfo.ConstructionRequirement	HVACDrv.ConstructionRequirement						
	UConstructionInfo.ConstructionType	HVACDrv.ConstructionType						
	UObject.ApprovalStatus	HVACDrv.ApprovalStatus						
	UFabricationInfo.FabricationRequirement	HVACDrv.FabricationRequirement						
	UFabricationInfo.FabricationType	HVACDrv.FabricationType						
	IJRtePartInsulation.IsInsulated	HVACDrv.HasInsulation						
	IJRteStockPartOccur.Length	HVACDrv.Length						
	IJRteStockPartOccur.CutLength	HVACDrv.CutLength						
	IWeightCG.DryWeight	HVACDrv.DryWeight						
	IWeightCG.WetWeight	HVACDrv.WetWeight						
	IWeightCG.DryCGK	HVACDrv.DryCGK						
	IWeightCG.DryCGY	HVACDrv.DryCGY						
	IWeightCG.DryCGZ	HVACDrv.DryCGZ						
	IWeightCG.WetCGK	HVACDrv.WetCGK						
	IWeightCG.WetCGY	HVACDrv.WetCGY						
	IWeightCG.WetCGZ	HVACDrv.WetCGZ						
!	UObject.DateCreated	HVACDrv.DateCreated						
!	UObject.DateLastModified	HVACDrv.DateLastModified						
!	UObject.UserCreated	HVACDrv.UserCreated						
!	UObject.UserLastModified	HVACDrv.UserLastModified						
!	UObject.ApprovalReason	HVACDrv.ApprovalReason						
	Label_ductpart_name	HVACDrv.Id					TRUE	
End								

You must map the corresponding PDS attribute name in the sheets to write the correct PDS attribute name against the Smart 3D value in the .drv file.

Example:

If Smart 3D has the attribute name **IsInsulated**, and you want to see the attribute name as **hasInsulation** in the .drv file, then you must map the attribute as show below:

	IUFabricationInfo.FabricationRequirement	HVACDrv.FabricationRequirement
	IUFabricationInfo.FabricationType	HVACDrv.FabricationType
	IJRtePartInsulation.IsInsulated	HVACDrv.HasInsulation
	IJRteStockPartOccur.Length	HVACDrv.Length

The generated .drv file with the DRMS linkage looks as follows:

```
demo_2.drv
1 lbl{171 80009 342645527727572499 text {
2   Name : Duct Part
3   ConstructionRequirement : Undefined
4   ConstructionType : Undefined
5   ApprovalStatus : Working
6   FabricationRequirement : By fabricator
7   FabricationType : Shop fabricated
8   HasInsulation : False
9   Length : 2693.1 mm
10  CutLength : 0 mm
11  DryWeight : 74.1237 lbm
12  WetWeight : 74.1237 lbm
13  DryCGX : -383231.9 mm
14  DryCGY : -3172164.4 mm
15  DryCGZ : 7766.7 mm
16  WetCGX : -383231.9 mm
17  WetCGY : -3172164.4 mm
18  WetCGZ : 7766.7 mm
19  Id : Duct Part
20  }}
21
22 lbl{171 80043 342645527727572671 text {
```

NOTES

- Because the HVAC export is not intelligent. The properties of the HVAC components can be reviewed, but they cannot be revised in PDS.
- Label mapping can also be applied to map any PDS attribute to the corresponding Smart 3D attribute.

For more information about creating label mapping, see *Exporting Labels from Smart 3D to PDS* (on page 35).

Exporting Smart 3D Electrical Attributes to PDS

Unlike the Equipment and Piping tasks, the Electrical task does not have equivalent PDS classes to which you can map the Smart 3D classes when you export the attributes. All of the attributes of cableway parts, cable tray parts, conduit parts and electrical components (with some limitations) are written directly to a .drv file. When you write attributes to the .drv file, the software reads the property mapping file (S3DPDSExport.xls) to process the attributes.

CLASS MAP

The Smart 3D classes CPRteCableTrayOccur (Cable tray parts), CPRteConduitOccur (Conduit parts), CPRteCableTrayComponentOcc (cable tray components), CPRteConduitComponentOcc (conduit components), and CPCableway (Cableway features and ductbanks) are mapped to the virtual class RWAYDrv.

Use a "!" To comment out entire line	S3D Class Name	PDS Class Name	Attributes Sheet
!	<i>User should not change or edit the values in this sheet</i>		
Start			
	CPRteCableTrayOccur	RWAYDrv	CableTrayOccurAttrMap
	CPRteConduitOccur	RWAYDrv	ConduitOccurAttrMap
	CPRteCableTrayComponentOcc	RWAYDrv	CableTrayComponentAttrMap
	CPRteConduitComponentOcc	RWAYDrv	ConduitComponentAttrMap
	CPCableway	RWAYDrv	CablewayAttrMap
End			

ATTRIBUTE MAP

Attributes exported to PDS are mapped in the attribute mapping sheets CableTrayOccurAttrMap, ConduitOccurAttrMap, CableTrayComponentAttrMap, ConduitComponentAttrMap, and CablewayAttrMap.

The **S3D Attribute** column displays the Smart 3D attribute from the form **Interface.S3D_Attribute**. The **PDS Attribute** column displays the attribute from the form **RWAYDrv.PDS_Attribute**, where RWAYDrv is the virtual class.

If Smart 3D has an attribute named **Length** that you want to display as **ee_tl_length** in the .drv file, then you must map the attribute as shown below:

Use a "!" To comment out entire line	S3D Attribute	PDS Attribute
!	<i>User can add new values or edit existing values in this sheet</i>	
Start		
	IJNamedItem.Name	RWAYDrv.Name
!	IJNamedItem.IIDForTypeString	RWAYDrv.IIDForTypeString
	IJAssemblyChild.Index	RWAYDrv.Index
	IJAssemblyChild.Locked	RWAYDrv.Locked
	IJConstructionInfo.ConstructionRequirement	RWAYDrv.ConstructionRequirement
	IJConstructionInfo.ConstructionType	RWAYDrv.ConstructionType
!	IJDObjct.DateCreated	RWAYDrv.DateCreated
!	IJDObjct.DateLastModified	RWAYDrv.DateLastModified
!	IJDObjct.UserCreated	RWAYDrv.UserCreated
!	IJDObjct.UserLastModified	RWAYDrv.UserLastModified
!	IJDObjct.ApprovalReason	RWAYDrv.ApprovalReason
!	IJDObjct.UIDCreator	RWAYDrv.UIDCreator
!	IJDObjct.UIDLastModifier	RWAYDrv.UIDLastModifier
	IJFabricationInfo.FabricationRequirement	RWAYDrv.FabricationRequirement
	IJFabricationInfo.FabricationType	RWAYDrv.FabricationType
	IJMTInfo.ReportingRequirements	RWAYDrv.ReportingRequirements
	IJMTInfo.ReportingType	RWAYDrv.ReportingType
	IJRteFabrication.FabricationTypeBasis	RWAYDrv.FabricationTypeBasis
	IJRtePathGenPart.IsBase	RWAYDrv.IsBase
	IJRteStockPartOccur.Length	RWAYDrv.ee_tl_length
	IJRteStockPartOccur.CutLength	RWAYDrv.CutLength
	IJSequence.Id	RWAYDrv.Id
	IJWeightCG.DryWeight	RWAYDrv.ee_weight
	IJWeightCG.WetWeight	RWAYDrv.cab_weight
!	IJWeightCG.DryCGX	RWAYDrv.DryCGX
!	IJWeightCG.DryCGY	RWAYDrv.DryCGY
!	IJWeightCG.DryCGZ	RWAYDrv.DryCGZ
!	IJWeightCG.WetCGX	RWAYDrv.WetCGX
!	IJWeightCG.WetCGY	RWAYDrv.WetCGY
!	IJWeightCG.WetCGZ	RWAYDrv.WetCGZ
End		

The generated .drv file with the DMRS linkage appears as follows:

```

288
289 lbl{171 80053 297048177550229596 text {
290   Index : 0
291   Locked : False
292   ConstructionRequirement : New
293   ConstructionType : New
294   FabricationRequirement : Undefined
295   FabricationType : Undefined
296   ReportingRequirements : To be reported
297   ReportingType : To be tracked by material control system
298   Name : System4-ET--0601-TRAY-0001
299   FabricationTypeBasis : Undefined
300   IsBase : True
301   ee_tl_length : 1712.3 mm
302   CutLength : 0 mm
303   Id : 450
304   ee_weight : 0 kg
305   cab_weight : 0 kg
306   DryCGX : Undefined
307   DryCGY : Undefined
308   DryCGZ : Undefined
309   WetCGX : Undefined
310   WetCGY : Undefined
311   WetCGZ : Undefined
312   DryProperties : 1024
313   WetProperties : 1024
314   DryCG : Undefined
315   WetCG : Undefined
316   }}
317
318 lbl{171 80053 297048182283370511 text {
319   Index : 0
320   Locked : False

```

NOTES

- You can review the properties of the electrical objects, but the properties cannot be edited in PDS.
- You can apply label mapping in order to map any PDS attribute to the corresponding Smart 3D attribute.

Exporting Cableway runs

A cableway is exported as a single run object to the .dgn file if the cableway is one of the following cableway types:

- SP3DPIA.CablewayEntities.RteCablewayType.CW_DUCTBANKTYPE
- SP3DPIA.CablewayEntities.RteCablewayType.CW_CABLEWAYTYPE
- SP3DPIA.CablewayEntities.RteCablewayType.CW_ENCLOSED_CWBARRIER

The run level properties of such cableways are exported to the .drv file. The mapping file used to export the run level properties of such cableways is CPCableway.

If the cableway run that you are exporting is one of the following cableway types, then each cabletray part in the run is exported to the .dgn file as a single object:

- SP3DPIA.CablewayEntities.RteCablewayType.CW_CABLETRAYTYPE
- SP3DPIA.CablewayEntities.RteCablewayType.CW_ENCLOSING_CWBARRIER

The properties on these objects are exported to the .drv file using the mapping sheet CPRteCableTrayOccur. The symbology applied to the exported part graphics is CABLE_TRAY_SYMBOLGY.

Components in these runs are also exported in the same way, but the mapping sheet used to export the properties on these components is CPRteCableTrayComponentOcc. The symbology applied to the exported part graphics is ELECTRICAL_COMPONENT_SYMBOLGY.

If any cableway features exist that do not have any base parts associated with them, then the graphics are exported to the .dgn file with the dmrs linkages. No properties are exported to the .drv file. The symbology applied to the exported feature graphics is CABLEWAY_SYMBOLGY.

Exporting Labels from Smart 3D to PDS

Labels let you get the attribute values of direct or related objects in Smart 3D.

Export to PDS supports the mapping of labels so that you can transfer attributes of direct or related objects to their PDS-equivalent attributes.

The following steps illustrate exporting properties from the related catalog part of Smart 3D to PDS. You can also use this workflow to export user-defined attributes to PDS.

1. In the Smart 3D Catalog task, create a label that gives a property of the related object.

For more information about creating labels, see *Label Editor Command* in the *Catalog User's Guide*. You can access this document using the **Help > Printable Guides** command in the software.

2. Open the specific mapping sheet in the **S3DPDSEExport.xls** workbook.

By default, this workbook is delivered to the *[Reference Data Folder]\SharedContent\Data\Translators\S3DPDSEExport* folder.

3. Map the **S3D Attribute** to the corresponding **PDS Attribute** by typing the label name in the **S3D Attribute** column.

- Type **TRUE** in the **Label** column.

Use a "!" To comment out entire line	3D Attribute	PDS Attribute	MapType	SheetName	Formula	Value	Label	Ignore
!	User can add new values or edit existing values in this sheet							
Start								
	UNamedItem.Name	equip_no						
	UEquipment.Description	equip_descor_1						
	Label_for_equip_desc	equip_descor_2					TRUE	
!		tutorial_no						
!		equip_class						
	UWeightCG.DryWeight	dry_weight						

- If the Smart 3D attribute is a code list, then you must provide the value in the **Value** column. The value must realize the label property and must be in the format [InterfaceName.AttributeName]. Be sure to add the respective code list sheet hyperlink and valuedef in the **maptype** column.

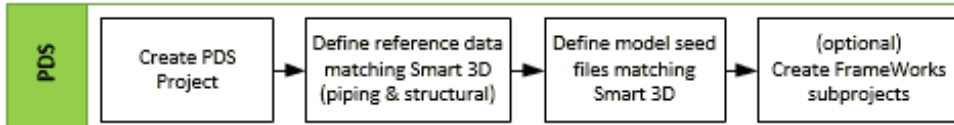
	HeatTracingInfo.HeatTracingMedium	heat_tracing_media:EW12AR18-SHORT-2	ValueDef	HeatTracingMediumCodeListMap		HeatTracingInfo.HeatTracingMedium		
	HeatTracingInfo.HeatTracingMediumTemperature	heat_tracing_temp:EW12AR19-Double-B						
	Label_construction_stat	construction_stat	ValueDef	ConstructionStatCodeListMap		ConstructionInfo.ConstructionType	TRUE	
!		hold_status						

- Save the workbook.

SECTION 3

Preparing PDS for Import

This section covers what you need to do in PDS to get it ready for importing data from Smart 3D. You must be using PDS Version 12 Service Pack 1 or later.



In This Section

Create the PDS Project.....	37
Define Matching Reference Data	38
Define Matching Model Seed Files	38
Create FrameWorks Plus Subprojects.....	38

Create the PDS Project

Before you can export your data from Smart 3D to PDS, you must create and configure a PDS receptacle project. Please reference these PDS documents if you need help creating a project:

- *Plant Design System (PDS) Project Setup Technical Reference*
- *Plant Design System (PDS) Express Project Creation*

When creating your PDS project, keep these items in mind:

- We recommend that you use metric projects or mixed projects with the metric system of units as the model units.

Piping

- The software exports insulation thickness data in Nominal Piping Diameter, or NPD, system of units. Create models for the piping discipline such that the insulation thickness uses the NPD system of units.
- For instruments and specialties, the dimensional data is exported in metric units.

Equipment

- Insulation thickness is shown in model units.
- Because traffic items (stairs, ladders, and handrails) are exported as equipment to equipment .dgn files, the same settings must be applied while creating .dgn files to export traffic items in the structural discipline.
- For equipment nozzles, NPD data is exported per model settings using the NPD Equivalence rule. This rule must be the same for both Smart 3D and PDS.

- The software exports all other data in metric units. We recommend that the physical units on the PDS project are set to SI units to avoid conflicts between the exported property value and related unit type.

Define Matching Reference Data

The reference data between Smart 3D and PDS must match. The easiest way to accomplish this is to use SmartPlant Reference Data (licensed separately) to maintain your reference data. In doing so, you can export your reference data to both the Smart 3D format and the PDS format, ensuring that they match.

Examples of reference data issues that you must consider (this is not a complete list):

- Your piping specifications must match between Smart 3D and PDS. Smart 3D and PDS use different default schemes so you will need to adjust one application's commodity codes to match the other.
- Structural material and material grades have different names. You will need to add the material and material grades to the FrameWorks Plus data files before you import structure. For more information, see *CIS2Import.ma* (on page 42).
- Structural cross-section names might have different names. You will need to create a mapping file of cross-section names before you import. For more information, see *CIS2Import.ma* (on page 42).

Define Matching Model Seed Files

You need to look at the seed models that you have defined in PDS to verify they meet your needs. For more information, see *Plant Design System (PDS) Project Setup Technical Reference* and *Plant Design System (PDS) Project Administrator*.

Create FrameWorks Plus Subprojects

You must create any FrameWorks Plus subprojects that you want through PD Shell.

NOTE To avoid creating models with incorrect working unit settings, adjust the working unit settings of FrameWorks Plus seed files after creating the projects, and *before* creating models.

The first step in using FrameWorks Plus with PDS is to integrate existing FrameWorks Plus projects into a PDS project or to create a FrameWorks Plus project in the PDS project. If the FrameWorks Plus project already exists, only database entries are created in the "pd_project-database" in pdtable_116.

NOTE The total path length to the FrameWorks Plus project including the drive letter and the required \s is limited to 36 characters.

FrameWorks Project Number - Specifies the FrameWorks Plus project name (the top-level project folder that appears in the Windows Explorer). This string can contain letters and/or numbers but no other special characters except the underscore (_) character. Names are limited to 14 characters.

FrameWorks Project Name - Type a description for the project.

FrameWorks File Directory - Type the full path to the folder where you want to store the project. Make sure you do not duplicate the project name in this path.

For example:

FrameWorks Plus Project Number: fwstr

-AND-

FrameWorks Plus File Directory: c:\pds_proj_dir\project

Will give you:

```
c:\pds_proj_dir\project\fwstr\  
c:\pds_proj_dir\project\fwstr\data  
c:\pds_proj_dir\project\fwstr\drw  
c:\pds_proj_dir\project\fwstr\esi  
c:\pds_proj_dir\project\fwstr\frz  
c:\pds_proj_dir\project\fwstr\int  
c:\pds_proj_dir\project\fwstr\mod  
c:\pds_proj_dir\project\fwstr\rpt
```

Entering an extra \fwstr on the end of the FrameWorks Plus File Directory name could complicate the folder structure. If you key in c:\pds_proj_dir\project\fwstr for the folder name and fwstr for the Number, you will get c:\pds_proj_dir\project\fwstr\fwstr for the final FrameWorks Plus Subproject folder name.

FrameWorks Network Address - Specifies the computer on which the FrameWorks Plus project is located. Type the computer's name.

Force Units - Specifies the force units to use by default for the member loads placed in this project. The force units are stored in the Standard Note Library List 1640.

★ IMPORTANT Do not modify the Standard Note Library List 1640. If you modify the standard note library list, the project creation might result in errors.

Standard Section Table - Specifies the standard section table to use by default for models created in this project. There are several standard section tables delivered with FrameWorks Plus. The standard section table location is read from the ..\fwplus\data\config.dat file.

User Section Table - Specifies the user section table to use by default for models created in this project.

List of Existing FrameWorks Projects - Lists all existing FrameWorks projects.

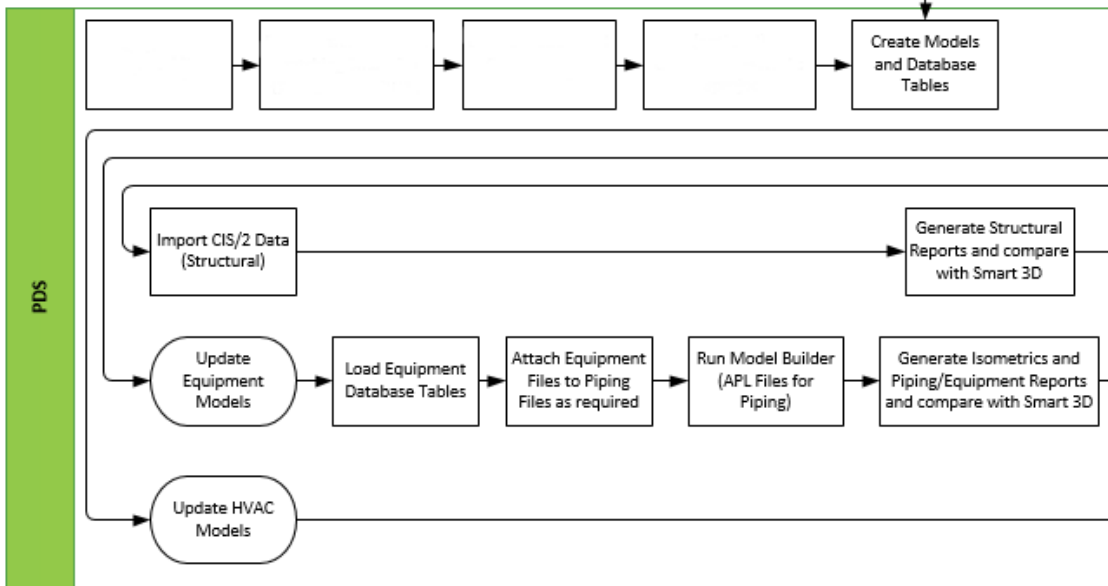
Create or Insert FrameWorks Plus Projects

1. Click **Start > Programs > PD_Shell > PD_Shell**.
2. Select a PDS project.
3. Click **Project Administrator**.
4. Click **Project Setup Manager**.
5. Click **Insert FrameWorks Project**.
6. Type the **FrameWorks Project Number**.
7. Type a **FrameWorks Project Name**.
8. Type a **FrameWorks File Directory**.
9. Type the **FrameWorks Network Address**.

10. Select the **Force Units** for the project.
11. Select the **Standard Section Table** for the project.
12. Select **Accept**.

SECTION 4

Importing Data into PDS



In This Section

Create Models from ASCII Files	41
Import Structural Data into FrameWorks Plus.....	42
Reference Equipment Models to Piping Models	44
Run Piping Model Builder.....	44

Create Models from ASCII Files

From a command prompt window, you need to create the areas, models, and database tables using the ASCII file that you created in *Generate a PDS Project Configuration File* (on page 28).

A new executable called `c:\win32app\ingr\pdprojec\bin\pds3dmdls.exe` combines the existing **Create Model from ASCII** and **Create Database Tables** commands. This executable does not require Intergraph Batch Services to run. The executable writes a log file named `s3dcrtdml.log` in the \$TEMP folder. The `cmdlasci.log` and `crtmodel.rep` log files are also written in the \$TEMP folder.

The **Create Model from ASCII** command creates the HVAC design file from the PEHVAC product seedfiles, `aecseed.dgn` and `aecseedm.dgn`, depending on the system of units in the project when creating the models requested by Smart 3D. The command will not create the HVAC files when run from inside PD Shell.

Command Syntax

```
C:\win32app\ingr\pdprojec\bin\pds3dmdls.exe pds_project_name nodeName directoryName fileName
```

where

pds_project_name is the name of the PDS project into which to insert the new models

nodeName is the computer where the ASCII input file is located

directoryName is the folder where the ASCII input file is located

fileName is the name of the ASCII input file

Import Structural Data into FrameWorks Plus

Smart 3D exports structural designs using two different file formats:


- **.cis2** - Exports basic structural elements, such as member systems, slabs, and slab openings. The software exports the data to a CIS2 file according to the hierarchy mapping in the **StructureHierarchy** sheet. You can import this file into FrameWorks Plus with *CIS2Import.ma* (on page 42).
- **.dgn** - Exports other structural object data, such as stairs, ladders, handrails, footings, foundations, walls, and wall openings. The software exports the data to a DGN file according to the hierarchy mapping in the **StructuralEquipmentHierarchy** sheet.

NOTES

- You can review wall properties in the same way that you view equipment properties.
- To review wall opening properties, set the current level to match the level to which you are exporting wall openings.


CIS2Import.ma

The `..\FWPlus\bin\CIS2Import.ma` application imports a CIS/2 .stp file into FrameWorks Plus. When you import structural data with a CIS2 file, the structural catalog data must match in the exporting application and in FrameWorks Plus. FrameWorks Plus creates objects using the model default data defined in **Settings > Defaults** if the structural data does not exist.

 **NOTE** FrameWorks Plus creates slabs with the material **Steel** and grade **A36** if the material and grade information for slabs does not exist.

Material

Materials are defined in the `..\fwplus\data\material.dat` file. This is a standard ASCII file that you can edit to add your own custom materials for both members and fireproofing. Be sure to make a backup copy of the *material.dat* file before you make your edits. You also need to keep a backup of the file in case you have to re-load FrameWorks Plus.

 **CAUTION** Do not edit or re-order the first eight entries in the *material.dat* file. Use only spaces between the material index number and the material name. Tabs or other hidden spacing characters can cause problems for FrameWorks Plus when reading the file.

Material Grade

Steel and concrete grades from Britain, Canada, Eurocodes 2 and 3, French, and U.S.A. as well as U.S.A fireproofing material grades are delivered. If you plan on using plastic, aluminum, timber, or custom materials, you need to add the grade information to the `..\fwplus\data\grade.dat` file yourself. This is a standard ASCII file. Be sure to make a backup

copy of the *grade.dat* file before you make your edits. You also need to keep a backup of the file in case you have to re-load FrameWorks Plus.

⚠ CAUTION Use only spaces between entries in the *grade.dat* file. Tabs or other hidden spacing characters can cause problems for FrameWorks Plus when reading the *grade.dat* file. In addition, do not use spaces in the grade name.

FrameWorks Plus tracks the unit of each grade in the *grade.dat* file. If you use an English unit grade in a metric model or a metric unit grade in an English model, FrameWorks Plus automatically converts the density values to the correct units for the model to ensure correct MTO reports.

English grades are defined in ksi for f'_c , F_y , and F_u and lbs/ft³ for density. Metric grades are defined in N/mm² for f'_c , F_y , and F_u and kg/m³ for density. You must define custom grades in these units for FrameWorks Plus to properly convert grade values when needed.

Cross-Sections

The **Utilities > Create Mapping File** command creates an ASCII mapping file for the model's active section table and 3rd party application. Many times, FrameWorks Plus and 3rd party applications use different names for the exact same section. The mapping file solves the naming conflicts by mapping section names in FrameWorks Plus to section names in the other applications.

This command creates a mapping file for the model's active section table and 3rd party software. The mapping file is named after the active 3rd Party Software and the active section table and is created in the project\int folder with a .fmf extension. For example, *aisc_GTSTRUDL.fmf* is the map file for the AISC table to GTSTRUDL section names. You need to create a mapping file for each section table/application combination you plan to use.

⚠ WARNING The mapping file created by this command is a template. FrameWorks Plus does write known-to-be-different section names to the mapping file. However, you are responsible for verifying, editing, updating, and maintaining the 3rd party application section names in the file.

Mapping File Format

The mapping file is an ASCII formatted file with six columns of information. Each column must be separated by at least one space or tab character. Comment lines should start with an exclamation point (!). Lines are limited to 132 characters in length. The last line in the file must contain the word FINISH in the first column.

- **Column 1** -- Indicates the section type (channel, angle, and so forth) or contains an exclamation point if it is a comment line. The section indicators are: 1 - I-section; 2 - Channels; 3 - Angles; 4 - Tees; 5 - Double Angles; 6 - Double Channels; 7 - Rectangular Tubes; 8 - Rectangular Solids; 9 - Pipes; 10 - Solid Rounds; 11 - NOT USED; 12 - Trapezoidal; 13 - Inverted Tees; 14 - Inverted Angles; 15 - Joist; 16 - Half Joists; and 17 - Arbitrary Sections.
- **Column 2** -- Should always contain the letters FWP.
- **Column 3** -- Contains the name of the section as it is called in FrameWorks Plus.
- **Column 4** -- Should always contain the letters ANL.
- **Column 5** -- Contains the name of the section table in the 3rd party application. If the 3rd party application does not require the section table name, the word DUMMY should be used.

- **Column 6** -- Contains the name of the section as it is called in the 3rd party application. It is your responsibility to edit the section name in this column to match the section name in the 3rd party software.

Here is an example of a mapping file. Because mapping files can be quite long, only a few lines are shown.

```
1 FWP W44X285 ANL WSHAPES9 W44X285
1 FWP W44X248 ANL WSHAPES9 W44X248
1 FWP W44X224 ANL WSHAPES9 W44X224
1 FWP W44X198 ANL WSHAPES9 W44X198
!
FINISH
```

Importing a CIS/2 file

1. Open the FrameWorks Plus model into which to import the .stp file.
2. On the MicroStation menu, select **Utilities > MDL Applications**.
3. In the **Available Applications** list, select **CIS2IMPORT**.
4. Click **Load**.
5. Specify the .stp file to import in the **File** box.
6. If you have a cross-section mapping file to use, select **Include Mapping File** and define the location of the mapping file.
7. Define the origin of the model you are importing.
8. Click **Apply**.
FrameWorks Plus imports the .stp file.
9. Click **View Log** and review the log file for errors.

Reference Equipment Models to Piping Models

As required by your model, you need to open each piping model in PDS Piping Designer and attach the appropriate equipment model using the **Ref Model** command. You must do this before you read in the piping APL files so that the connections to the equipment nozzles can be made.

Run Piping Model Builder

Verify that all equipment models are correctly referenced by each piping model before you import the APL files. For more information, see *Reference Equipment Models to Piping Models* (on page 44).

1. Select **Start > All Programs > PD_Shell > PD_Shell**.
2. Select your PDS project.
3. Select **Piping Model Builder**.

Appendix: Export to PDS Workbook

The **File > Export > PDS Export > Export Model** command uses the Microsoft Excel workbook **S3DPDSEExport.xlsx** to map all of the Smart 3D objects and object properties to the corresponding objects in PDS. By default, the workbook is delivered in the *[Product Folder]\3DRefData\SharedContent\Data\Translators\S3DPDSEExport* folder during setup.

The **S3DPDSEExport.xlsx** workbook consists of all required types of translation mapping worksheets. Before you export Smart 3D model data, you must modify the attribute, codelist, and hierarchy mapping worksheets to ensure that all of the necessary criteria have been met.

See the comments in the delivered mapping file sheets for more information on configuring the mapping files.

- *Equipment Translation Maps* (on page 45)
- *Piping Translation Maps* (on page 49)
- *Structure Translation Maps* (on page 59)
- *HVAC Translation Maps* (on page 65)
- *Electrical Translation Maps* (on page 67)
- *Hierarchy Translation Maps* (on page 72)
- *Codelist Translation Maps* (on page 77)

Equipment Translation Maps

Use the equipment translation mapping sheets in the **S3DPDSEExport.xls** workbook to map Smart 3D equipment properties to the correct PDS equipment attributes. Before exporting Smart 3D equipment model data to PDS, you must modify these sheets to ensure that all of the catalog equipment components in the Smart 3D model are mapped to corresponding equipment components in PDS.

- All catalog equipment objects in the Smart 3D model are mapped to corresponding equipment objects in PDS.
- All shapes in the Smart 3D model are mapped to corresponding primitives in PDS.
- All nozzles in the Smart 3D model are mapped to corresponding nozzles in PDS. This is mandatory for the transfer of nozzles from Smart 3D regardless of the options that are defined in the *PDSEExportTranslator.ini* file.

The following equipment translation maps are delivered in the **S3DPDSEExport.xls** workbook:

EquipmentClassMap - Maps the supported equipment classes between Smart 3D and PDS. This is the main mapping sheet for equipment discipline. For more information, see *EquipmentClassMap* (on page 46).

CPPipeNozzleMap - Maps pipe nozzle attributes between Smart 3D and PDS. For more information, see *CPPipeNozzleMap* (on page 47).

CPSmartEquipmentMap - Maps equipment attributes between Smart 3D and PDS. For more information, see *CPSmartEquipmentMap* (on page 46).

EquipmentClassMap

The **EquipmentClassMap** sheet displays the equipment class mapping between Smart 3D and PDS. Only the equipment classes displayed on this sheet are currently supported for export to PDS.

★ **IMPORTANT** Do not modify any of the values on this sheet.

S3D Class Name

Displays the respective Smart 3D discipline class to be mapped.

PDS Class Name

Displays the respective discipline class to which the **Smart 3D Class Name** value is mapped.

Attributes Sheet

Displays the attribute sheet name in the **S3DPDSExport.xls** workbook that maps the corresponding Smart 3D discipline class properties to PDS.

CPSmartEquipmentMap

The **CPSmartEquipmentMap** sheet maps equipment attributes between Smart 3D and PDS.

S3D Attribute

Specifies the name of the Smart 3D equipment property to map.

PDS Attribute

Specifies the name of the PDS attribute to which the **S3D Attribute** value is mapped.

MapType

- Defines the map type of the attribute. Acceptable values are as follows:
- **NameDef** - Maps the S3D attribute directly to corresponding PDS attribute. For example, there is an attribute named **NPD** in the source system and one named **NominalDiameter** in the destination system. As the source and destination attribute descriptions are similar, both the attributes are mapped name to name and transferred directly. By default, if no **MapType** is specified, **NameDef** is used.
- **ValueDef** - Maps the codelisted value of an attribute before it is transferred.
- **AdditionalAttributeDef** - Used when it is necessary to create new or additional attributes for the value of a given attribute.

SheetName

Defines the name of the sheet in the **S3DPDSExport.xls** workbook that contains S3D and corresponding PDS codelisted values for the attributes.

Value

Used only for attributes that use codelist map sheets. Contains the S3D Attribute value in [].

Label

Specifies whether the Smart 3D attribute is a label name. Type **TRUE** or **YES** if the Smart 3D attribute is a label name. Entries can be in lowercase or uppercase.

Ignore

Specifies whether the attribute is ignored during export. Type **TRUE** or **YES** to ignore the attribute. Entries can be in lowercase or uppercase.

CPPipeNozzleMap

The **CPPipeNozzleMap** sheet maps pipe nozzle attributes between Smart 3D and PDS.

S3D

Specifies the name of the Smart 3D equipment property to map.

PDS

Specifies the name of the PDS attribute to which the **S3D** value is mapped.

MapType

- Defines the map type of the attribute. Acceptable values are as follows:
- **NameDef** - Maps the S3D attribute directly to corresponding PDS attribute. For example, there is an attribute named **NPD** in the source system and one named **NominalDiameter** in the destination system. As the source and destination attribute descriptions are similar, both the attributes are mapped name to name and transferred directly. By default, if no **MapType** is specified, **NameDef** is used.
- **ValueDef** - Maps the codelisted value of an attribute before it is transferred.
- **AdditionalAttributeDef** - Used when it is necessary to create new or additional attributes for the value of a given attribute.

SheetName

Defines the name of the sheet in the **S3DPDSExport.xls** workbook that contains S3D and corresponding PDS codelisted values for the attributes.

Value

Used only for attributes that use codelist map sheets. Contains the S3D Attribute value in [].

Label

Specifies whether the Smart 3D attribute is a label name. Type **TRUE** or **YES** if the Smart 3D attribute is a label name. Entries can be in lowercase or uppercase.

Ignore

Specifies whether the attribute is ignored during export. Type **TRUE** or **YES** to ignore the attribute. Entries can be in lowercase or uppercase.

EqpGlobalsMap

The **EqpGlobalsMap** sheet maps equipment attributes between Smart 3D and PDS using the codelisted value specified in **ApprovalStatusCodListMap**, **ConstructionStatusCodeListMap**, **EqpDivisionCodelistMap**, and **InsulationPurposeCodelistMap** sheets.

 **NOTE** Do not modify any of the values in this sheet.

S3D Attribute

Specifies the attribute name of the Smart 3D equipment attributes to map.

PDS Attribute

Specifies the name of the PDS attribute to which the **S3D Attribute** is mapped.

MapType

- Defines the map type of the attribute. Acceptable values are as follows:
- **NameDef** - Maps the S3D attribute directly to corresponding PDS attribute. For example, there is an attribute named **NPD** in the source system and one named **NominalDiameter** in the destination system. As the source and destination attribute descriptions are similar, both the attributes are mapped name to name and transferred directly. By default, if no **MapType** is specified, **NameDef** is used.
- **ValueDef** - Maps the codelisted value of an attribute before it is transferred.
- **AdditionalAttributeDef** - Used when it is necessary to create new or additional attributes for the value of a given attribute.

SheetName

Defines the name of the sheet in the **S3DPDSExport.xls** workbook that contains S3D and corresponding PDS codelisted values for the attributes.

Value

Used only for attributes that use codelist map sheets. Contains the S3D Attribute value in [].

Label

Specifies whether the Smart 3D attribute is a label name. Type **TRUE** or **YES** if the Smart 3D attribute is a label name. Entries can be in lowercase or uppercase.

Ignore

Specifies whether the attribute is ignored during export. Type **TRUE** or **YES** to ignore the attribute. Entries can be in lowercase or uppercase.

Piping Translation Maps

Use the piping translation mapping sheets in the **S3DPDSExport.xls** workbook to map Smart 3D piping properties to the correct PDS piping attributes. Before exporting Smart 3D piping model data to PDS, you must modify these sheets to ensure that all of the catalog piping components in the Smart 3D model are mapped to corresponding piping component objects in PDS.

The following piping translation maps are delivered in the **S3DPDSExport.xls** workbook:

PipingClassMap - Maps the supported piping classes between Smart 3D and PDS. This is the main mapping sheet for piping discipline. For more information, see *PipingClassMap* (on page 50).

PipeComponentAttrsMap - Maps pipe nozzle attributes between Smart 3D and PDS. For more information, see *PipeComponentAttrsMap* (on page 52).

PipeSegmentAttrsMap - Maps piping attributes between Smart 3D and PDS. For more information, see *PipeSegmentAttrsMap* (on page 50).

PipePartAttrsMap - Maps piping part attributes between Smart 3D and PDS. For more information, see *PipePartAttrsMap* (on page 51).

PipeInstrumentAttrsMap - Maps the piping instrument attributes between Smart 3D and PDS. For more information, see *PipeInstrumentAttrsMap* (on page 52).

PipeSpecialityAttrsMap - Maps the piping specialty component attributes between Smart 3D and PDS. For more information, see *PipeSpecialityAttrsMap* (on page 53).

PipeSupportAttrsMap - Maps the pipe support attributes between Smart 3D and PDS. For more information, see *PipeSupportAttrsMap* (on page 54).

PipingGlobalsMap - Defines the piping specialty instruments using the codelist values specified in the **SpecialityModelCodeMap** sheet. For more information, see *PipingGlobalsMap* (on page 55).

ComponentCommodityNames - Maps the Smart 3D pipe part short code with PDS commodity name using the **CommodityNames** worksheet. For more information, see *ComponentCommodityNames* (on page 56).

EndPreparationPDSCodeListMap - Contains PDS codelist values and corresponding short descriptions for piping component **EndPreparation** values. For more information, see *EndPreparationPDSCodeListMap* (on page 57).

ScheduleThicknessPDSCodeListMap - Contains PDS codelist values and corresponding short descriptions for pipe **ScheduleThickness** values. For more information, see *ScheduleThicknessPDSCodeListMap* (on page 57).

TapOptionCodeMap - Contains Smart 3D codelist values that are mapped to corresponding PDS attribute values for pipe taps. For more information, see *TapOptionCodeMap* (on page 57).

PipingClassMap

The **PipingClassMap** sheet displays the piping class mapping between Smart 3D and PDS. Only the piping classes displayed on this sheet are currently supported for export to PDS.

★ **IMPORTANT** Do not modify any of the values on this sheet.

S3D Class Name

Displays the respective Smart 3D discipline class to be mapped.

PDS Class Name

Displays the respective discipline class to which the **Smart 3D Class Name** value is mapped.

Attributes Sheet

Displays the attribute sheet name in the **S3DPDSExport.xls** workbook that maps the corresponding Smart 3D discipline class properties to PDS.

PipeSegmentAttrsMap

The **PipeSegmentAttrsMap** sheet maps pipe segment attributes between Smart 3D and PDS.

S3D Attribute

Displays the name of the Smart 3D pipe segment property to map.

PDS Attribute

Displays the name of the PDS attribute to which the **S3D Attribute** value is mapped.

MapType

- Defines the map type of the attribute. Acceptable values are as follows:
- **NameDef** - Maps the S3D attribute directly to corresponding PDS attribute. For example, there is an attribute named **NPD** in the source system and one named **NominalDiameter** in the destination system. As the source and destination attribute descriptions are similar, both the attributes are mapped name to name and transferred directly. By default, if no **MapType** is specified, **NameDef** is used.
- **ValueDef** - Maps the codelisted value of an attribute before it is transferred.
- **AdditionalAttributeDef** - Used when it is necessary to create new or additional attributes for the value of a given attribute.

SheetName

Defines the name of the sheet in the **S3DPDSExport.xls** workbook that contains S3D and corresponding PDS codelisted values for the attributes.

Value

Used only for attributes that use codelist map sheets. Contains the S3D Attribute value in [].

Label

Specifies whether the Smart 3D attribute is a label name. Type **TRUE** or **YES** if the Smart 3D attribute is a label name. Entries can be in lowercase or uppercase.

Ignore

Specifies whether the attribute is ignored during export. Type **TRUE** or **YES** to ignore the attribute. Entries can be in lowercase or uppercase.

PipePartAttrsMap

The **PipePartAttrsMap** sheet maps pipe part attributes between Smart 3D and PDS.

S3D Attribute

Specifies the name of the Smart 3D pipe segment property to map.

PDS Attribute

Specifies the name of the PDS attribute to which the **S3D Attribute** value is mapped.

MapType

- Defines the map type of the attribute. Acceptable values are as follows:
- **NameDef** - Maps the S3D attribute directly to corresponding PDS attribute. For example, there is an attribute named **NPD** in the source system and one named **NominalDiameter** in the destination system. As the source and destination attribute descriptions are similar, both the attributes are mapped name to name and transferred directly. By default, if no **MapType** is specified, **NameDef** is used.
- **ValueDef** - Maps the codelisted value of an attribute before it is transferred.
- **AdditionalAttributeDef** - Used when it is necessary to create new or additional attributes for the value of a given attribute.

SheetName

Defines the name of the sheet in the **S3DPDSExport.xls** workbook that contains S3D and corresponding PDS codelisted values for the attributes.

Value

Used only for attributes that use codelist map sheets. Contains the S3D Attribute value in [].

Label

Specifies whether the Smart 3D attribute is a label name. Type **TRUE** or **YES** if the Smart 3D attribute is a label name. Entries can be in lowercase or uppercase.

Ignore

Specifies whether the attribute is ignored during export. Type **TRUE** or **YES** to ignore the attribute. Entries can be in lowercase or uppercase.

PipeComponentAttrsMap

The **PipeComponentAttrsMap** sheet maps pipe component attributes between Smart 3D and PDS.

S3D Attribute

Type the name of the Smart 3D pipe component property to map.

PDS Attribute

Type the name of the PDS attribute to which the **S3D Attribute** value is mapped.

MapType

- Defines the map type of the attribute. Acceptable values are as follows:
- **NameDef** - Maps the S3D attribute directly to corresponding PDS attribute. For example, there is an attribute named **NPD** in the source system and one named **NominalDiameter** in the destination system. As the source and destination attribute descriptions are similar, both the attributes are mapped name to name and transferred directly. By default, if no **MapType** is specified, **NameDef** is used.
- **ValueDef** - Maps the codelisted value of an attribute before it is transferred.
- **AdditionalAttributeDef** - Used when it is necessary to create new or additional attributes for the value of a given attribute.

SheetName

Defines the name of the sheet in the **S3DPDSExport.xls** workbook that contains S3D and corresponding PDS codelisted values for the attributes.

Value

Used only for attributes that use codelist map sheets. Contains the S3D Attribute value in [].

Label

Specifies whether the Smart 3D attribute is a label name. Type **TRUE** or **YES** if the Smart 3D attribute is a label name. Entries can be in lowercase or uppercase.

Ignore

Specifies whether the attribute is ignored during export. Type **TRUE** or **YES** to ignore the attribute. Entries can be in lowercase or uppercase.

PipeInstrumentAttrsMap

The **PipeInstrumentAttrsMap** sheet maps piping instrument attributes between Smart 3D and PDS.

S3D Attribute

Specifies the name of the Smart 3D piping instrument property to map.

PDS Attribute

Specifies the name of the PDS attribute to which the **S3D Attribute** value is mapped.

MapType

- Defines the map type of the attribute. Acceptable values are as follows:

- **NameDef** - Maps the S3D attribute directly to corresponding PDS attribute. For example, there is an attribute named **NPD** in the source system and one named **NominalDiameter** in the destination system. As the source and destination attribute descriptions are similar, both the attributes are mapped name to name and transferred directly. By default, if no **MapType** is specified, **NameDef** is used.
- **ValueDef** - Maps the codelisted value of an attribute before it is transferred.
- **AdditionalAttributeDef** - Used when it is necessary to create new or additional attributes for the value of a given attribute.

SheetName

Defines the name of the sheet in the **S3DPDSExport.xls** workbook that contains S3D and corresponding PDS codelisted values for the attributes.

Value

Used only for attributes that use codelist map sheets. Contains the S3D Attribute value in [].

Label

Specifies whether the Smart 3D attribute is a label name. Type **TRUE** or **YES** if the Smart 3D attribute is a label name. Entries can be in lowercase or uppercase.

Ignore

Specifies whether the attribute is ignored during export. Type **TRUE** or **YES** to ignore the attribute. Entries can be in lowercase or uppercase.

PipeSpecialityAttrsMap

The **PipeSpecialityAttrsMap** sheet maps pipe specialty components attributes between Smart 3D and PDS.

S3D Attribute

Specifies the name of the Smart 3D piping specialty component property to map.

PDS Attribute

Specifies the name of the PDS attribute to which the **S3D Attribute** value is mapped.

MapType

- Defines the map type of the attribute. Acceptable values are as follows:
- **NameDef** - Maps the S3D attribute directly to corresponding PDS attribute. For example, there is an attribute named **NPD** in the source system and one named **NominalDiameter** in the destination system. As the source and destination attribute descriptions are similar, both the attributes are mapped name to name and transferred directly. By default, if no **MapType** is specified, **NameDef** is used.
- **ValueDef** - Maps the codelisted value of an attribute before it is transferred.
- **AdditionalAttributeDef** - Used when it is necessary to create new or additional attributes for the value of a given attribute.

SheetName

Defines the name of the sheet in the **S3DPDSExport.xls** workbook that contains S3D and corresponding PDS codelisted values for the attributes.

Value

Used only for attributes that use codelist map sheets. Contains the S3D Attribute value in [].

Label

Specifies whether the Smart 3D attribute is a label name. Type **TRUE** or **YES** if the Smart 3D attribute is a label name. Entries can be in lowercase or uppercase.

Ignore

Specifies whether the attribute is ignored during export. Type **TRUE** or **YES** to ignore the attribute. Entries can be in lowercase or uppercase.

PipeSupportAttrsMap

The **PipeSupportAttrsMap** sheet maps pipe support attributes between Smart 3D and PDS.

S3D Attribute

Specifies the name of the Smart 3D pipe support property to map.

PDS Attribute

Specifies the name of the PDS attribute to which the **S3D Attribute** value is mapped.

MapType

- Defines the map type of the attribute. Acceptable values are as follows:
- **NameDef** - Maps the S3D attribute directly to corresponding PDS attribute. For example, there is an attribute named **NPD** in the source system and one named **NominalDiameter** in the destination system. As the source and destination attribute descriptions are similar, both the attributes are mapped name to name and transferred directly. By default, if no **MapType** is specified, **NameDef** is used.
- **ValueDef** - Maps the codelisted value of an attribute before it is transferred.
- **AdditionalAttributeDef** - Used when it is necessary to create new or additional attributes for the value of a given attribute.

SheetName

Defines the name of the sheet in the **S3DPDSExport.xls** workbook that contains S3D and corresponding PDS codelisted values for the attributes.

Value

Used only for attributes that use codelist map sheets. Contains the S3D Attribute value in [].

Label

Specifies whether the Smart 3D attribute is a label name. Type **TRUE** or **YES** if the Smart 3D attribute is a label name. Entries can be in lowercase or uppercase.

Ignore

Specifies whether the attribute is ignored during export. Type **TRUE** or **YES** to ignore the attribute. Entries can be in lowercase or uppercase.

PipingGlobalsMap

The **PipingGlobalsMap** sheet maps Smart 3D specialty and instrument classes to PDS classes with the help of the **SpecialtyModelCodeMap** and **InstrumentModelCodeMap** sheets. These sheets map specialty and instrument part numbers or tags from Smart 3D to the PDS model codes.

 **NOTE** Do not modify any of the values in this sheet.

S3D Value

Specifies the attribute name of the Smart 3D piping instrument and piping specialty to map.

PDS Value

Specifies the name of the PDS value to which the **S3D Value** is mapped.

MapType

- Defines the map type of the attribute. Acceptable values are as follows:
- **NameDef** - Maps the S3D attribute directly to corresponding PDS attribute. For example, there is an attribute named **NPD** in the source system and one named **NominalDiameter** in the destination system. As the source and destination attribute descriptions are similar, both the attributes are mapped name to name and transferred directly. By default, if no **MapType** is specified, **NameDef** is used.
- **ValueDef** - Maps the codelisted value of an attribute before it is transferred.
- **AdditionalAttributeDef** - Used when it is necessary to create new or additional attributes for the value of a given attribute.

SheetName

Defines the name of the sheet in the **S3DPDSExport.xls** workbook that contains S3D and corresponding PDS codelisted values for the attributes.

Value

Used only for attributes that use codelist map sheets. Contains the S3D Attribute value in [].

Label

Specifies whether the Smart 3D attribute is a label name. Type **TRUE** or **YES** if the Smart 3D attribute is a label name. Entries can be in lowercase or uppercase.

Ignore

Specifies whether the attribute is ignored during export. Type **TRUE** or **YES** to ignore the attribute. Entries can be in lowercase or uppercase.

ComponentCommodityNames

The **ComponentCommodityNames** sheet maps pipe commodity names between Smart 3D and PDS using the codelisted values specified in **CommodityNames** sheet.

NOTE Do not modify any of the values on this sheet.

S3D Attribute

Specifies the name of the Smart 3D pipe support property to map.

PDS Attribute

Specifies the name of the PDS attribute to which the **S3D Attribute** value is mapped.

MapType

- Defines the map type of the attribute. Acceptable values are as follows:
- NameDef** - Maps the S3D attribute directly to corresponding PDS attribute. For example, there is an attribute named **NPD** in the source system and one named **NominalDiameter** in the destination system. As the source and destination attribute descriptions are similar, both the attributes are mapped name to name and transferred directly. By default, if no **MapType** is specified, **NameDef** is used.
- ValueDef** - Maps the codelisted value of an attribute before it is transferred.
- AdditionalAttributeDef** - Used when it is necessary to create new or additional attributes for the value of a given attribute.

SheetName

Defines the name of the sheet in the **S3DPDSExport.xls** workbook that contains S3D and corresponding PDS codelisted values for the attributes.

Value

Used only for attributes that use codelist map sheets. Contains the S3D Attribute value in [].

Label

Specifies whether the Smart 3D attribute is a label name. Type **TRUE** or **YES** if the Smart 3D attribute is a label name. Entries can be in lowercase or uppercase.

Ignore

Specifies whether the attribute is ignored during export. Type **TRUE** or **YES** to ignore the attribute. Entries can be in lowercase or uppercase.

NOTE For piping discipline PDS Attribute value should contain PDS attribute name followed with below syntax. For example, to map S3D component name with PDS component number the syntax should be as described below.

Use a "!" To comment out entire line	S3D Attribute	PDS Attribute
!	<i>User can add new values or edit existing values in this sheet</i>	
Start		
	IJNamedItem.Name	pipng_comp_no:E#34A#2:CHAR:20

where:

pipng_comp_no is PDS attribute column name in table number 34 from design.ddl file.

Design.dll is PDS shema definition file for piping discipline

E#table numberA# is used to define synonyms in APL file. In this case for pipe component this value is 34 (table number from design.ddl)

2 is the column number in table 34

CHAR is data type of the attribute/column

20 is size of the attribute/column

EndPreparationPDSCodeListMap

PDS Codelist Value

Specifies the PDS codelisted value for the corresponding PDS object.

Description

Specifies the shortcode or short description of the corresponding **PDS Codelist Value**.

ScheduleThicknessPDSCodeListMap

PDS Codelist Value

Specifies the PDS codelisted value for the corresponding PDS object.

Description

Specifies the shortcode or short description of the corresponding **PDS Codelist Value**.

TapOptionCodeMap

S3D Value

Specifies the Smart 3D codelisted value for the corresponding Smart 3D object.

PDS Value

Specifies the PDS codelisted value for the corresponding **S3D Value**.

DimensionalDataMapForSpecialty

The **DimensionalDataMapForSpecialty** sheet contains additional attribute values for PDS piping specialties. These values are mapped to their corresponding PDS attribute values.

PDS Value

Specifies the PDS specialty model code.

Attribute Name

Specifies the PDS attribute name for the corresponding **PDS Value**.

Attribute Value

Specifies the PDS attribute value for the corresponding **Attribute Name**.

MapType

Defines the map type of the attribute. Acceptable values are as follows:

- **NameDef** - Maps the S3D attribute directly to corresponding PDS attribute. For example, there is an attribute named **NPD** in the source system and one named **NominalDiameter** in the destination system. As the source and destination attribute descriptions are similar, both the attributes are mapped name to name and transferred directly. By default, if no **MapType** is specified, **NameDef** is used.
- **ValueDef** - Maps the codelisted value of an attribute before it is transferred.
- **AdditionalAttributeDef** - Used when it is necessary to create new or additional attributes for the value of a given attribute.

SheetName

Defines the name of the sheet in the **S3DPDSExport.xls** workbook that contains S3D and corresponding PDS codelisted values for the attributes.

Formula

Type the formula used to calculate the value of the attribute to mapped, if necessary. For example, if the source system has an attribute **Radius** that needs to be mapped to the destination system's attribute **Diameter**. The software calculates the **Diameter** using the formula, $Diameter = 2 * Radius$, and then maps the source and destination attributes.

Ignore

Specifies whether the attribute is ignored during export. Type **TRUE** or **YES** to ignore the attribute. Entries can be in lowercase or uppercase.

DimensionalDataMapForInstrument

The **DimensionalDataMapForInstrument** sheet contains additional attribute values for PDS piping instruments. These values are mapped to the corresponding PDS attribute values.

PDS Value

Specifies the PDS instrument model code.

Attribute Name

Specifies the PDS attribute name for the corresponding **PDS Value**.

Attribute Value

Specifies the PDS attribute value for the corresponding **Attribute Name**.

Structure Translation Maps

Use the structure translation mapping sheets in the **S3DPDSExport.xls** workbook to map Smart 3D structure properties to the correct PDS structure attributes. Before exporting Smart 3D structure model data to PDS, you must modify these sheets to ensure that all of the catalog structure parts and components in the Smart 3D model are mapped to corresponding structure objects in PDS.

The following structure translation maps are delivered in the **S3DPDSExport.xls** workbook:

StructureClassMap - Maps the supported structure classes between Smart 3D and PDS. This is the main mapping sheet for structure discipline. For more information, see *StructureClassMap* (on page 60).

CSPSFootingMap - Maps structure footing attributes between Smart 3D and PDS. For more information, see *CSPSFootingMap* (on page 60).

CSPSEquipFoundationMap - Maps equipment foundation attributes between Smart 3D and PDS. For more information, see *CSPSEquipFoundationMap* (on page 61).

CSPSStairMap - Maps stair attributes between Smart 3D and PDS. For more information, see *CSPSStairMap* (on page 61).

CSPSLadderMap - Maps ladder attributes between Smart 3D and PDS. For more information, see *CSPSLadderMap* (on page 62).

CSPSHandrailMap - Maps handrail attributes between Smart 3D and PDS. For more information, see *CSPSHandrailMap* (on page 63).

SPSWallPartMap - Maps structure wall part attributes between Smart 3D and PDS. For more information, see *SPSWallPartMap* (on page 64).

CStructCutoutContourMap - Maps structure cutout contour attributes between Smart 3D and PDS. For more information, see *CStructCutoutContourMap* (on page 64).

ConstructionStatusCodeListMap - Maps Smart 3D and PDS codelist values for structure construction status. For more information, see *ConstructionStatusCodeListMap* (on page 78).

EqpDivisionCodelistMap - Maps Smart 3D and PDS codelist values for equipment division. For more information, see *EqpDivisionCodelistMap* (on page 79).

ApprovalStatusCodeListMap - Maps Smart 3D and PDS codelist values for approval status. For more information, see *ApprovalStatusCodeListMap* (on page 78).

InsulationPurposeCodelistMap - Maps Smart 3D and PDS codelist values for insulation. For more information, see *InsulationPurposeCodelistMap* (on page 82).

StructureClassMap

The **StructureClassMap** sheet displays the structure class mapping between Smart 3D and PDS. Only the structure classes displayed on this sheet are currently supported for export to PDS.

★ **IMPORTANT** Do not modify any of the values on this sheet.

S3D Class Name

Displays the respective Smart 3D discipline class to be mapped.

PDS Class Name

Displays the respective discipline class to which the **Smart 3D Class Name** value is mapped.

Attributes Sheet

Displays the attribute sheet name in the **S3DPDSExport.xls** workbook that maps the corresponding Smart 3D discipline class properties to PDS.

CSPSFootingMap

The **CSPSFootingMap** sheet maps structure footing attributes between Smart 3D and PDS.

S3D Attribute

Type the name of the Smart 3D structure property to map.

PDS Attribute

Type the name of the PDS attribute to which the **S3D Attribute** value is mapped.

MapType

- Defines the map type of the attribute. Acceptable values are as follows:
- **NameDef** - Maps the S3D attribute directly to corresponding PDS attribute. For example, there is an attribute named **NPD** in the source system and one named **NominalDiameter** in the destination system. As the source and destination attribute descriptions are similar, both the attributes are mapped name to name and transferred directly. By default, if no **MapType** is specified, **NameDef** is used.
- **ValueDef** - Maps the codelist value of an attribute before it is transferred.
- **AdditionalAttributeDef** - Used when it is necessary to create new or additional attributes for the value of a given attribute.

SheetName

Defines the name of the sheet in the **S3DPDSExport.xls** workbook that contains S3D and corresponding PDS codelist values for the attributes.

Value

Used only for attributes that use codelist map sheets. Contains the S3D Attribute value in [].

Label

Specifies whether the Smart 3D attribute is a label name. Type **TRUE** or **YES** if the Smart 3D attribute is a label name. Entries can be in lowercase or uppercase.

Ignore

Specifies whether the attribute is ignored during export. Type **TRUE** or **YES** to ignore the attribute. Entries can be in lowercase or uppercase.

CSPSEquipFoundationMap

The **CSPSEquipFoundationMap** sheet maps equipment foundation attributes between Smart 3D and PDS.

S3D Attribute

Type the name of the Smart 3D equipment foundation property to map.

PDS Attribute

Type the name of the PDS attribute to which the **S3D Attribute** value is mapped.

MapType

- Defines the map type of the attribute. Acceptable values are as follows:
- **NameDef** - Maps the S3D attribute directly to corresponding PDS attribute. For example, there is an attribute named **NPD** in the source system and one named **NominalDiameter** in the destination system. As the source and destination attribute descriptions are similar, both the attributes are mapped name to name and transferred directly. By default, if no **MapType** is specified, **NameDef** is used.
- **ValueDef** - Maps the codelisted value of an attribute before it is transferred.
- **AdditionalAttributeDef** - Used when it is necessary to create new or additional attributes for the value of a given attribute.

SheetName

Defines the name of the sheet in the **S3DPDSExport.xls** workbook that contains S3D and corresponding PDS codelisted values for the attributes.

Value

Used only for attributes that use codelist map sheets. Contains the S3D Attribute value in [].

Label

Specifies whether the Smart 3D attribute is a label name. Type **TRUE** or **YES** if the Smart 3D attribute is a label name. Entries can be in lowercase or uppercase.

Ignore

Specifies whether the attribute is ignored during export. Type **TRUE** or **YES** to ignore the attribute. Entries can be in lowercase or uppercase.

CSPSStairMap

The **CSPSStairMap** sheet maps stair attributes between Smart 3D and PDS.

S3D Attribute

Type the name of the Smart 3D stair property to map.

PDS Attribute

Type the name of the PDS attribute to which the **S3D Attribute** value is mapped.

MapType

- Defines the map type of the attribute. Acceptable values are as follows:
- **NameDef** - Maps the S3D attribute directly to corresponding PDS attribute. For example, there is an attribute named **NPD** in the source system and one named **NominalDiameter** in the destination system. As the source and destination attribute descriptions are similar, both the attributes are mapped name to name and transferred directly. By default, if no **MapType** is specified, **NameDef** is used.
- **ValueDef** - Maps the codelisted value of an attribute before it is transferred.
- **AdditionalAttributeDef** - Used when it is necessary to create new or additional attributes for the value of a given attribute.

SheetName

Defines the name of the sheet in the **S3DPDSExport.xls** workbook that contains S3D and corresponding PDS codelisted values for the attributes.

Value

Used only for attributes that use codelist map sheets. Contains the S3D Attribute value in [].

Label

Specifies whether the Smart 3D attribute is a label name. Type **TRUE** or **YES** if the Smart 3D attribute is a label name. Entries can be in lowercase or uppercase.

Ignore

Specifies whether the attribute is ignored during export. Type **TRUE** or **YES** to ignore the attribute. Entries can be in lowercase or uppercase.

CSPSLadderMap

The **CSPSLadderMap** sheet maps ladder attributes between Smart 3D and PDS.

S3D Attribute

Type the name of the Smart 3D ladder property to map.

PDS Attribute

Type the name of the PDS attribute to which the **S3D Attribute** value is mapped.

MapType

- Defines the map type of the attribute. Acceptable values are as follows:
- **NameDef** - Maps the S3D attribute directly to corresponding PDS attribute. For example, there is an attribute named **NPD** in the source system and one named **NominalDiameter** in the destination system. As the source and destination attribute descriptions are similar, both the attributes are mapped name to name and transferred directly. By default, if no **MapType** is specified, **NameDef** is used.

- **ValueDef** - Maps the codelisted value of an attribute before it is transferred.
- **AdditionalAttributeDef** - Used when it is necessary to create new or additional attributes for the value of a given attribute.

SheetName

Defines the name of the sheet in the **S3DPDSExport.xls** workbook that contains S3D and corresponding PDS codelisted values for the attributes.

Value

Used only for attributes that use codelist map sheets. Contains the S3D Attribute value in [].

Label

Specifies whether the Smart 3D attribute is a label name. Type **TRUE** or **YES** if the Smart 3D attribute is a label name. Entries can be in lowercase or uppercase.

Ignore

Specifies whether the attribute is ignored during export. Type **TRUE** or **YES** to ignore the attribute. Entries can be in lowercase or uppercase.

CSPSHandrailMap

The **CSPSHandrailMap** sheet maps handrail attributes between Smart 3D and PDS.

S3D Attribute

Type the name of the Smart 3D handrail property to map.

PDS Attribute

Type the name of the PDS attribute to which the **S3D Attribute** value is mapped.

MapType

- Defines the map type of the attribute. Acceptable values are as follows:
- **NameDef** - Maps the S3D attribute directly to corresponding PDS attribute. For example, there is an attribute named **NPD** in the source system and one named **NominalDiameter** in the destination system. As the source and destination attribute descriptions are similar, both the attributes are mapped name to name and transferred directly. By default, if no **MapType** is specified, **NameDef** is used.
- **ValueDef** - Maps the codelisted value of an attribute before it is transferred.
- **AdditionalAttributeDef** - Used when it is necessary to create new or additional attributes for the value of a given attribute.

SheetName

Defines the name of the sheet in the **S3DPDSExport.xls** workbook that contains S3D and corresponding PDS codelisted values for the attributes.

Value

Used only for attributes that use codelist map sheets. Contains the S3D Attribute value in [].

Label

Specifies whether the Smart 3D attribute is a label name. Type **TRUE** or **YES** if the Smart 3D attribute is a label name. Entries can be in lowercase or uppercase.

Ignore

Specifies whether the attribute is ignored during export. Type **TRUE** or **YES** to ignore the attribute. Entries can be in lowercase or uppercase.

SPSWallPartMap

The **SPSWallPartMap** sheet maps structure wall part attributes between Smart 3D and PDS.

S3D Attribute

Type the name of the Smart 3D wall part property to map.

PDS Attribute

Type the name of the PDS attribute to which the **S3D Attribute** value is mapped.

MapType

- Defines the map type of the attribute. Acceptable values are as follows:
- **NameDef** - Maps the S3D attribute directly to corresponding PDS attribute. For example, there is an attribute named **NPD** in the source system and one named **NominalDiameter** in the destination system. As the source and destination attribute descriptions are similar, both the attributes are mapped name to name and transferred directly. By default, if no **MapType** is specified, **NameDef** is used.
- **ValueDef** - Maps the codelisted value of an attribute before it is transferred.
- **AdditionalAttributeDef** - Used when it is necessary to create new or additional attributes for the value of a given attribute.

SheetName

Defines the name of the sheet in the **S3DPDSExport.xls** workbook that contains S3D and corresponding PDS codelisted values for the attributes.

Value

Used only for attributes that use codelist map sheets. Contains the S3D Attribute value in [].

Label

Specifies whether the Smart 3D attribute is a label name. Type **TRUE** or **YES** if the Smart 3D attribute is a label name. Entries can be in lowercase or uppercase.

Ignore

Specifies whether the attribute is ignored during export. Type **TRUE** or **YES** to ignore the attribute. Entries can be in lowercase or uppercase.

CStructCutoutContourMap

The **CStructCutoutContourMap** sheet maps structure cutout contour openings attributes between Smart 3D and PDS.

S3D Attribute

Type the name of the Smart 3D cutout contour property to map.

PDS Attribute

Type the name of the PDS attribute to which the **S3D Attribute** value is mapped.

MapType

- Defines the map type of the attribute. Acceptable values are as follows:
- **NameDef** - Maps the S3D attribute directly to corresponding PDS attribute. For example, there is an attribute named **NPD** in the source system and one named **NominalDiameter** in the destination system. As the source and destination attribute descriptions are similar, both the attributes are mapped name to name and transferred directly. By default, if no **MapType** is specified, **NameDef** is used.
- **ValueDef** - Maps the codelisted value of an attribute before it is transferred.
- **AdditionalAttributeDef** - Used when it is necessary to create new or additional attributes for the value of a given attribute.

SheetName

Defines the name of the sheet in the **S3DPDSExport.xls** workbook that contains S3D and corresponding PDS codelisted values for the attributes.

Value

Used only for attributes that use codelist map sheets. Contains the S3D Attribute value in [].

Label

Specifies whether the Smart 3D attribute is a label name. Type **TRUE** or **YES** if the Smart 3D attribute is a label name. Entries can be in lowercase or uppercase.

Ignore

Specifies whether the attribute is ignored during export. Type **TRUE** or **YES** to ignore the attribute. Entries can be in lowercase or uppercase.

HVAC Translation Maps

Use the HVAC translation mapping sheets in the **S3DPDSExport.xls** workbook to map Smart 3D HVAC properties to the correct PDS HVAC attributes. Before exporting Smart 3D HVAC model data to PDS, you must modify these sheets to ensure that all of the catalog HVAC parts and components in the Smart 3D model are mapped to corresponding HVAC objects in PDS.

The following HVAC translation maps are delivered in the **S3DPDSExport.xls** workbook:

HVACClassMap - Maps the supported HVAC classes between Smart 3D and PDS. This is the main mapping sheet for HVAC discipline. For more information, see *HVACClassMap* (on page 65).

HVACDuctPartAttrsMap - Maps duct part attributes between Smart 3D and PDS. For more information, see *HVACDuctPartAttrsMap* (on page 66).

HVACDuctComponentAttrsMap - Maps duct component attributes between Smart 3D and PDS. For more information, see *HVACDuctComponentAttrsMap* (on page 67).

HVACClassMap

The **HVACClassMap** sheet displays the HVAC class mapping between Smart 3D and PDS. Only the HVAC classes displayed on this sheet are currently supported for export to PDS.

★ **IMPORTANT** Do not modify any of the values on this sheet.

S3D Class Name

Displays the respective Smart 3D discipline class to be mapped.

PDS Class Name

Displays the respective discipline class to which the **Smart 3D Class Name** value is mapped.

Attributes Sheet

Displays the attribute sheet name in the **S3DPDSExport.xls** workbook that maps the corresponding Smart 3D discipline class properties to PDS.

HVACDuctPartAttrsMap

The **HVACDuctPartAttrsMap** sheet maps HVAC duct part attributes between Smart 3D and PDS.

S3D Attribute

Type the name of the Smart 3D HVAC duct part property to map.

PDS Attribute

Type the name of the PDS attribute to which the **S3D Attribute** value is mapped.

MapType

- Defines the map type of the attribute. Acceptable values are as follows:
- **NameDef** - Maps the S3D attribute directly to corresponding PDS attribute. For example, there is an attribute named **NPD** in the source system and one named **NominalDiameter** in the destination system. As the source and destination attribute descriptions are similar, both the attributes are mapped name to name and transferred directly. By default, if no **MapType** is specified, **NameDef** is used.
- **ValueDef** - Maps the codelisted value of an attribute before it is transferred.
- **AdditionalAttributeDef** - Used when it is necessary to create new or additional attributes for the value of a given attribute.

SheetName

Defines the name of the sheet in the **S3DPDSExport.xls** workbook that contains S3D and corresponding PDS codelisted values for the attributes.

Value

Used only for attributes that use codelist map sheets. Contains the S3D Attribute value in [].

Label

Specifies whether the Smart 3D attribute is a label name. Type **TRUE** or **YES** if the Smart 3D attribute is a label name. Entries can be in lowercase or uppercase.

Ignore

Specifies whether the attribute is ignored during export. Type **TRUE** or **YES** to ignore the attribute. Entries can be in lowercase or uppercase.

HVACDuctComponentAtrsMap

The **HVACDuctComponentAtrsMap** sheet maps HVAC duct component attributes between Smart 3D and PDS.

S3D Attribute

Type the name of the Smart 3D HVAC duct component property to map.

PDS Attribute

Type the name of the PDS attribute to which the **S3D Attribute** value is mapped.

MapType

- Defines the map type of the attribute. Acceptable values are as follows:
- **NameDef** - Maps the S3D attribute directly to corresponding PDS attribute. For example, there is an attribute named **NPD** in the source system and one named **NominalDiameter** in the destination system. As the source and destination attribute descriptions are similar, both the attributes are mapped name to name and transferred directly. By default, if no **MapType** is specified, **NameDef** is used.
- **ValueDef** - Maps the codelisted value of an attribute before it is transferred.
- **AdditionalAttributeDef** - Used when it is necessary to create new or additional attributes for the value of a given attribute.

SheetName

Defines the name of the sheet in the **S3DPDSExport.xls** workbook that contains S3D and corresponding PDS codelisted values for the attributes.

Value

Used only for attributes that use codelist map sheets. Contains the S3D Attribute value in [].

Label

Specifies whether the Smart 3D attribute is a label name. Type **TRUE** or **YES** if the Smart 3D attribute is a label name. Entries can be in lowercase or uppercase.

Ignore

Specifies whether the attribute is ignored during export. Type **TRUE** or **YES** to ignore the attribute. Entries can be in lowercase or uppercase.

Electrical Translation Maps

Use the electrical translation mapping sheets in the **S3DPDSExport.xls** workbook to map Smart 3D electrical properties to the correct PDS RWAY attributes. Before exporting Smart 3D electrical model data to PDS, you must modify these sheets to ensure that all of the catalog electrical parts and components in the Smart 3D model are mapped to corresponding RWAY objects in PDS.

The following electrical translation maps are delivered in the **S3DPDSExport.xls** workbook:

RWAYClassMap - Maps the supported electrical classes between Smart 3D and PDS. This is the main mapping sheet for the electrical discipline. For more information, see *RWAYClassMap* (on page 68).

CableTrayOccurAttrsMap- Maps cable tray part attributes between Smart 3D and PDS. For more information, see *CableTrayOccurAttrsMap* (on page 68).

ConduitOccurAttrsMap- Maps conduit attributes between Smart 3D and PDS. For more information, see *ConduitOccurAttrsMap* (on page 69).

CableTrayComponentAttrsMap- Maps cable tray component attributes between Smart 3D and PDS. For more information, see *CableTrayComponentAttrsMap* (on page 70).

ConduitComponentAttrsMap- Maps conduit component attributes between Smart 3D and PDS. For more information, see *ConduitComponentAttrsMap* (on page 70).

CablewayAttrsMap- Maps cableway attributes between Smart 3D and PDS. For more information, see *CablewayAttrsMap* (on page 71).

RWAYClassMap

The RWAYClassMap sheet displays the electrical class mapping between Smart 3D and PDS. Only the electrical classes displayed on this sheet are supported for export to PDS.

★ **IMPORTANT** Do not modify any of the values on this sheet.

S3D Class Name

Displays the respective Smart 3D discipline class to be mapped.

PDS Class Name

Displays the respective discipline class to which the **Smart 3D Class Name** value is mapped.

Attributes Sheet

Displays the attribute sheet name in the **S3DPDSExport.xls** workbook that maps the corresponding Smart 3D discipline class properties to PDS.

CableTrayOccurAttrsMap

The **CableTrayOccurAttrsMap** sheet maps electrical tray part attributes between Smart 3D and PDS.

S3D Attribute

Type the name of the Smart 3D electrical tray part property to map.

PDS Attribute

Type the name of the PDS attribute to which the **S3D Attribute** value is mapped.

MapType

- Defines the map type of the attribute. Acceptable values are as follows:
- **NameDef** - Maps the S3D attribute directly to corresponding PDS attribute. For example, there is an attribute named **NPD** in the source system and one named **NominalDiameter** in the destination system. As the source and destination attribute descriptions are similar, both the attributes are mapped name to name and transferred directly. By default, if no **MapType** is specified, **NameDef** is used.
- **ValueDef** - Maps the codelisted value of an attribute before it is transferred.

- **AdditionalAttributeDef** - Used when it is necessary to create new or additional attributes for the value of a given attribute.

SheetName

Defines the name of the sheet in the **S3DPDSExport.xls** workbook that contains S3D and corresponding PDS codelisted values for the attributes.

Value

Used only for attributes that use codelist map sheets. Contains the S3D Attribute value in [].

Label

Specifies whether the Smart 3D attribute is a label name. Type **TRUE** or **YES** if the Smart 3D attribute is a label name. Entries can be in lowercase or uppercase.

Ignore

Specifies whether the attribute is ignored during export. Type **TRUE** or **YES** to ignore the attribute. Entries can be in lowercase or uppercase.

ConduitOccurAttrsMap

The **ConduitOccursAttrMap** sheet maps conduit attributes between Smart 3D and PDS.

S3D Attribute

Type the name of the Smart 3D conduit property to map.

PDS Attribute

Type the name of the PDS attribute to which the **S3D Attribute** value is mapped.

MapType

- Defines the map type of the attribute. Acceptable values are as follows:
- **NameDef** - Maps the S3D attribute directly to corresponding PDS attribute. For example, there is an attribute named **NPD** in the source system and one named **NominalDiameter** in the destination system. As the source and destination attribute descriptions are similar, both the attributes are mapped name to name and transferred directly. By default, if no **MapType** is specified, **NameDef** is used.
- **ValueDef** - Maps the codelisted value of an attribute before it is transferred.
- **AdditionalAttributeDef** - Used when it is necessary to create new or additional attributes for the value of a given attribute.

SheetName

Defines the name of the sheet in the **S3DPDSExport.xls** workbook that contains S3D and corresponding PDS codelisted values for the attributes.

Value

Used only for attributes that use codelist map sheets. Contains the S3D Attribute value in [].

Label

Specifies whether the Smart 3D attribute is a label name. Type **TRUE** or **YES** if the Smart 3D attribute is a label name. Entries can be in lowercase or uppercase.

Ignore

Specifies whether the attribute is ignored during export. Type **TRUE** or **YES** to ignore the attribute. Entries can be in lowercase or uppercase.

CableTrayComponentAttrsMap

The **CableTrayComponentAttrsMap** sheet maps cable tray component attributes between Smart 3D and PDS.

S3D Attribute

Type the name of the Smart 3D cable tray component property to map.

PDS Attribute

Type the name of the PDS attribute to which the **S3D Attribute** value is mapped.

MapType

- Defines the map type of the attribute. Acceptable values are as follows:
- **NameDef** - Maps the S3D attribute directly to corresponding PDS attribute. For example, there is an attribute named **NPD** in the source system and one named **NominalDiameter** in the destination system. As the source and destination attribute descriptions are similar, both the attributes are mapped name to name and transferred directly. By default, if no **MapType** is specified, **NameDef** is used.
- **ValueDef** - Maps the codelist value of an attribute before it is transferred.
- **AdditionalAttributeDef** - Used when it is necessary to create new or additional attributes for the value of a given attribute.

SheetName

Defines the name of the sheet in the **S3DPDSExport.xls** workbook that contains S3D and corresponding PDS codelist values for the attributes.

Value

Used only for attributes that use codelist map sheets. Contains the S3D Attribute value in [].

Label

Specifies whether the Smart 3D attribute is a label name. Type **TRUE** or **YES** if the Smart 3D attribute is a label name. Entries can be in lowercase or uppercase.

Ignore

Specifies whether the attribute is ignored during export. Type **TRUE** or **YES** to ignore the attribute. Entries can be in lowercase or uppercase.

ConduitComponentAttrsMap

The **ConduitComponentAttrsMap** sheet maps conduit component attributes between Smart 3D and PDS.

S3D Attribute

Type the name of the Smart 3D conduit component property to map.

PDS Attribute

Type the name of the PDS attribute to which the **S3D Attribute** value is mapped.

MapType

- Defines the map type of the attribute. Acceptable values are as follows:
- **NameDef** - Maps the S3D attribute directly to corresponding PDS attribute. For example, there is an attribute named **NPD** in the source system and one named **NominalDiameter** in the destination system. As the source and destination attribute descriptions are similar, both the attributes are mapped name to name and transferred directly. By default, if no **MapType** is specified, **NameDef** is used.
- **ValueDef** - Maps the codelisted value of an attribute before it is transferred.
- **AdditionalAttributeDef** - Used when it is necessary to create new or additional attributes for the value of a given attribute.

SheetName

Defines the name of the sheet in the **S3DPDSExport.xls** workbook that contains S3D and corresponding PDS codelisted values for the attributes.

Value

Used only for attributes that use codelist map sheets. Contains the S3D Attribute value in [].

Label

Specifies whether the Smart 3D attribute is a label name. Type **TRUE** or **YES** if the Smart 3D attribute is a label name. Entries can be in lowercase or uppercase.

Ignore

Specifies whether the attribute is ignored during export. Type **TRUE** or **YES** to ignore the attribute. Entries can be in lowercase or uppercase.

CablewayAttrsMap

The **CablewayAttrsMap** sheet maps cableway attributes between Smart 3D and PDS.

S3D Attribute

Type the name of the Smart 3D cableway part property to map.

PDS Attribute

Type the name of the PDS attribute to which the **S3D Attribute** value is mapped.

MapType

- Defines the map type of the attribute. Acceptable values are as follows:
- **NameDef** - Maps the S3D attribute directly to corresponding PDS attribute. For example, there is an attribute named **NPD** in the source system and one named **NominalDiameter** in the destination system. As the source and destination attribute descriptions are similar, both the attributes are mapped name to name and transferred directly. By default, if no **MapType** is specified, **NameDef** is used.
- **ValueDef** - Maps the codelisted value of an attribute before it is transferred.
- **AdditionalAttributeDef** - Used when it is necessary to create new or additional attributes for the value of a given attribute.

SheetName

Defines the name of the sheet in the **S3DPDSExport.xls** workbook that contains S3D and corresponding PDS codelisted values for the attributes.

Value

Used only for attributes that use codelist map sheets. Contains the S3D Attribute value in [].

Label

Specifies whether the Smart 3D attribute is a label name. Type **TRUE** or **YES** if the Smart 3D attribute is a label name. Entries can be in lowercase or uppercase.

Ignore

Specifies whether the attribute is ignored during export. Type **TRUE** or **YES** to ignore the attribute. Entries can be in lowercase or uppercase.

Hierarchy Translation Maps

Use the hierarchy translation mapping sheets in the **S3DPDSExport.xls** workbook to generate PDS hierarchy attributes in the same order as Smart 3D hierarchy properties.

NOTE Before importing the **S3DPDSExport.xls**, you must extract the Smart 3D system hierarchy. The extracted hierarchy sheets have all Smart 3D systems hierarchy under the **HierarchyHeader**, **S3DSystemName**, **OID**, and **ObjectCount** in the same order as in Smart 3D **Workspace Explorer**. After extracting Smart 3D hierarchy, you need to specify the area and model information for PDS objects corresponding to those from Smart 3D. An ASCII file is generated with the updated hierarchy sheet information when you export. The generated ASCII file emulates the hierarchy of Smart 3D in PDS when imported.

The following hierarchy translation maps are delivered in the **S3DPDSExport.xls** workbook:

EquipmentHierarchy - Maps equipment system attributes between Smart 3D and PDS. For more information, see *EquipmentHierarchy* (on page 72).

PipingHierarchy - Maps piping system attributes between Smart 3D and PDS. For more information, see *PipingHierarchy* (on page 73).

StructureHierarchy - Maps structure system attributes between Smart 3D and PDS. For more information, see *StructureHierarchy* (on page 74).

StructuralEquipmentHierarchy - Maps structural equipment attributes between Smart 3D and PDS. For more information, see *StructuralEquipmentHierarchy* (on page 75).

RaceWayHierarchy - Maps raceway system attributes between Smart 3D and PDS. For more information, see *RaceWayHierarchy* (on page 75).

HVACHierarchy - Maps HVAC system attributes between Smart 3D and PDS. For more information, see *HVACHierarchy* (on page 76).

EquipmentHierarchy

The **EquipmentHierarchy** sheet maps equipment system attributes between Smart 3D and PDS.

PDS SERVER NAME

Specifies the name of the server on which PDS is installed.

NETWORK PATH

Specifies the path to the folder where the PDS modules will be created.

Hierarchy Header

Displays the Smart 3D hierarchy system name.

S3DSystemName

Displays the hierarchy of Smart 3D Workspace Explorer objects. The software creates PDS modules in the same hierarchical order.

OID

Displays the Smart 3D object ID to which corresponding PDS object is mapped.

ObjectCount

Displays the number of objects under corresponding Smart 3D system hierarchy.

Area Name

Specifies the name of the PDS module area. The maximum number of characters acceptable for the area name is 10.

Area Description

Specifies the area description for the PDS module.

Model Name

Specifies the name for the PDS model. The maximum number of characters acceptable for the area name is 10.

Model Description

Specifies the model description for the PDS module.

PipingHierarchy

The **PipingHierarchy** sheet maps pipeline system hierarchy between Smart 3D and PDS.

PDS SERVER NAME

Specifies the name of the server on which PDS is installed.

NETWORK PATH

Specifies the path to the folder where the PDS modules will be created.

Hierarchy Header

Displays the Smart 3D hierarchy system name.

S3DSystemName

Displays the hierarchy of Smart 3D Workspace Explorer objects. The software creates PDS modules in the same hierarchical order.

OID

Displays the Smart 3D object ID to which corresponding PDS object is mapped.

ObjectCount

Displays the number of objects under corresponding Smart 3D system hierarchy.

Area Name

Specifies the name of the PDS module area. The maximum of characters acceptable for the area name is 10.

Area Description

Specifies the area description for the PDS module.

Model Name

Specifies the name for the PDS model. The maximum of characters acceptable for the area name is 10.

Model Description

Specifies the model description for the PDS module.

StructureHierarchy

The **StructureHierarchy** sheet maps structure system attributes between Smart 3D and PDS.

PDS SERVER NAME

Specifies the name of the server on which PDS is installed.

NETWORK PATH

Specifies the path to the folder where the PDS modules will be created.

Hierarchy Header

Displays the Smart 3D hierarchy system name.

S3DSystemName

Displays the hierarchy of Smart 3D Workspace Explorer objects. The software creates PDS modules in the same hierarchical order.

OID

Displays the Smart 3D object ID to which corresponding PDS object is mapped.

ObjectCount

Displays the number of objects under corresponding Smart 3D system hierarchy.

Area Name

Specifies the name of the PDS module area. The maximum of characters acceptable for the area name is 10.

Area Description

Specifies the area description for the PDS module.

Model Name

Specifies the name for the PDS model. The maximum of characters acceptable for the area name is 10.

Model Description

Specifies the model description for the PDS module.

StructuralEquipmentHierarchy

The **StructuralEquipmentHierarchy** sheet maps structural equipment attributes between Smart 3D and PDS.

PDS SERVER NAME

Specifies the name of the server on which PDS is installed.

NETWORK PATH

Specifies the path to the folder where the PDS modules will be created.

Hierarchy Header

Displays the Smart 3D hierarchy system name.

S3DSystemName

Displays the hierarchy of Smart 3D Workspace Explorer objects. The software creates PDS modules in the same hierarchical order.

OID

Displays the Smart 3D object ID to which corresponding PDS object is mapped.

ObjectCount

Displays the number of objects under corresponding Smart 3D system hierarchy.

Area Name

Specifies the name of the PDS module area. The maximum number of characters acceptable for the area name is 10.

Area Description

Specifies the area description for the PDS module.

Model Name

Specifies the name for the PDS model. The maximum number of characters acceptable for the area name is 10.

Model Description

Specifies the model description for the PDS module.

RaceWayHierarchy

The **RaceWayHierarchy** sheet maps the raceway system between Smart 3D and PDS.

PDS SERVER NAME

Specifies the name of the server on which PDS is installed.

NETWORK PATH

Specifies the path to the folder where the PDS modules will be created.

Hierarchy Header

Displays the Smart 3D hierarchy system name.

S3DSystemName

Displays the hierarchy of Smart 3D Workspace Explorer objects. The software are creates PDS modules in the same hierarchal order.

OID

Displays the Smart 3D object ID to which corresponding PDS object is mapped.

ObjectCount

Displays the number of objects under corresponding Smart 3D system hierarchy.

Area Name

Specifies the name of the PDS module area. The maximum of characters acceptable for the area name is 10.

Area Description

Specifies the area description for the PDS module.

Model Name

Specifies the name for the PDS model. The maximum of characters acceptable for the area name is 10.

Model Description

Specifies the model description for the PDS module.

HVACHierarchy

The **HVACHierarchy** sheet maps the HVAC system between Smart 3D and PDS.

PDS SERVER NAME

Specifies the name of the server on which PDS is installed.

NETWORK PATH

Specifies the path to the folder where the PDS modules will be created.

Hierarchy Header

Displays the Smart 3D hierarchy system name.

S3DSystemName

Displays the hierarchy of Smart 3D Workspace Explorer objects. The software are creates PDS modules in the same hierarchal order.

OID

Displays the Smart 3D object ID to which corresponding PDS object is mapped.

ObjectCount

Displays the number of objects under corresponding Smart 3D system hierarchy.

Area Name

Specifies the name of the PDS module area. The maximum of characters acceptable for the area name is 10.

Area Description

Specifies the area description for the PDS module.

Model Name

Specifies the name for the PDS model. The maximum of characters acceptable for the area name is 10.

Model Description

Specifies the model description for the PDS module.

Codelist Translation Maps

The codelist maps contain catalog reference values for corresponding Smart 3D object which are mapped to their corresponding object catalog reference values in PDS. You can modify the codelist sheets.

The following codelist maps are delivered in the **S3DPDMEExport.xls** workbook:

ApprovalStatusCodeListMap (on page 78)
CleaningRequirementsCodeListMap (on page 78)
ConstructionStatusCodeListMap (on page 78)
DesignResponsibilityCodeListMap (on page 79)
DesignStandardCodeListMap (on page 79)
EqpDivisionCodeListMap (on page 79)
EndPreparationCodeListMap (on page 79)
EndStandardCodeListMap (on page 80)
FabricationCategoryCodeListMap (on page 80)
FluidCodeCodeListMap (on page 80)
GeometryStandardsCodeListMap (on page 81)
HeatTracingReqrmntsCodeListMap (on page 81)
HeatTracingMediumCodeListMap (on page 81)
InsulationPurposeCodeListMap (on page 82)
MaterialsGradeCodeListMap (on page 82)
OptionCodeCodeListMap (on page 82)
PipingCommodityTypeCodeListMap (on page 83)
ReportingTypeCodeListMap (on page 83)
ScheduleThicknessCodeListMap (on page 83)
StressRequirementsCodeListMap (on page 84)
SpecialtyModelCodeMap (on page 84)
WeldTypeCodeListMap (on page 84)
DimensionalDataMapForSpecialty (on page 58)

ApprovalStatusCodeListMap

The **ApprovalStatusCodeListMap** sheet contains codelisted values for Smart 3D object approval status. These values are mapped to their corresponding approval status values in PDS.

S3D Value

Specifies the Smart 3D codelisted value for the corresponding Smart 3D object.

PDS Value

Specifies the PDS codelisted value for the corresponding **S3D Value**.

CleaningRequirementsCodeListMap

The **CleaningRequirementsCodeListMap** sheet contains codelisted values for Smart 3D cleaning requirements. These values are mapped to their corresponding construction status values in PDS.

S3D Value

Specifies the Smart 3D codelisted value for the corresponding Smart 3D object.

PDS Value

Specifies the PDS codelisted value for the corresponding **S3D Value**.

CodeListValueDescription

Specifies the description for the cleaning requirement.

CoatingTypeCodeListMap

The **CoatingTypeCodeListMap** sheet contains codelisted values for Smart 3D coating type. These values are mapped to their corresponding values in PDS.

S3D Value

Specifies the Smart 3D codelisted value for the corresponding Smart 3D coating type.

PDS Value

Specifies the PDS codelisted value for the corresponding **S3D Value**.

ConstructionStatusCodeListMap

The **ConstructionStatusCodeListMap** sheet contains codelisted values for Smart 3D construction status. These values are mapped to their corresponding construction status values in PDS.

S3D Value

Specifies the Smart 3D codelisted value for the corresponding Smart 3D object.

PDS Value

Specifies the PDS codelisted value for the corresponding **S3D Value**.

DesignResponsibilityCodeListMap

The **DesignResponsibilityCodeListMap** sheet contains codelisted values for Smart 3D design responsibilities. These values are mapped to their corresponding values in PDS.

S3D Value

Specifies the Smart 3D codelisted value for the corresponding Smart 3D object.

PDS Value

Specifies the PDS codelisted value for the corresponding **S3D Value**.

CodeListValueDescription

Specifies the description of the type of design responsibility.

DesignStandardCodeListMap

The **DesignStandardCodeListMap** sheet contains codelisted values for Smart 3D object design standard. These values are mapped to their corresponding design standard values in PDS.

S3D Value

Specifies the Smart 3D codelisted value for the corresponding Smart 3D object.

PDS Value

Specifies the PDS codelisted value for the corresponding **S3D Value**.

CodeListValueDescription

Specifies the short code for the design standard. For example, ASME-B31.2.

EqpDivisionCodelistMap

The **EqpDivisionCodelistMap** sheet contains codelisted values for Smart 3D equipment division. These values are mapped to their corresponding equipment division values in PDS.

S3D Value

Specifies the Smart 3D codelisted value for the corresponding Smart 3D object.

PDS Value

Specifies the PDS codelisted value for the corresponding **S3D Value**.

EndPreparationCodelistMap

The **EndPreparationCodelistMap** sheet contains codelisted values for Smart 3D pipe nozzle end preparation type. These values are mapped to their corresponding construction status values in PDS.

S3D Value

Specifies the Smart 3D codelisted value for the corresponding Smart 3D object.

PDS Value

Specifies the PDS codelisted value for the corresponding **S3D Value**.

CodeListValueDescription

Specifies the short description of the type of pipe nozzle end preparation.

EndStandardCodeListMap

The **EndStandardCodeListMap** sheet contains codelisted values for Smart 3D end preparation standards. These values are mapped to their corresponding end preparation standard values in PDS.

S3D Value

Specifies the Smart 3D codelisted value for the corresponding Smart 3D object.

PDS Value

Specifies the PDS codelisted value for the corresponding **S3D Value**.

CodeListValueDescription

Specifies the short description for the end preparation standard such as **ASME-B16.12**, **API-6A**, and so on.

FabricationCategoryCodeListMap

The **FabricationCategoryCodeListMap** sheet contains codelisted values for Smart 3D fabrication category. These values are mapped to their corresponding fabrication category values in PDS.

S3D Value

Specifies the Smart 3D codelisted value for the corresponding Smart 3D object.

PDS Value

Specifies the PDS codelisted value for the corresponding **S3D Value**.

FluidCodeCodeListMap

The **FluidCodeCodeListMap** sheet contains codelisted values for Smart 3D fluid codes. These values are mapped to their corresponding fluid code values in PDS.

S3D Value

Specifies the Smart 3D codelisted value for the corresponding Smart 3D object.

PDS Value

Specifies the PDS codelisted value for the corresponding **S3D Value**.

CodeListValueDescription

Specifies the short description for the fluid code.

GeometryStandardsCodeListMap

The **GeometryStandardsCodeListMap** sheet contains codelisted values for Smart 3D geometry standards. These values are mapped to their corresponding geometry standards in PDS.

S3D Value

Specifies the Smart 3D codelisted value for the corresponding Smart 3D object.

PDS Value

Specifies the PDS codelisted value for the corresponding **S3D Value**.

CodeListValueDescription

Specifies the short description for the geometry standard. For example, **ASME B16.33**.

LongDescription

Specifies a detailed description of corresponding **CodeListValueDescription**.

HeatTracingReqrmntsCodeListMap

The **HeatTracingReqrmntsCodeListMap** sheet contains codelisted values for Smart 3D construction status. These values are mapped to their corresponding heat tracing requirement values in PDS.

S3D Value

Specifies the Smart 3D codelisted value for the corresponding Smart 3D object.

PDS Value

Specifies the PDS codelisted value for the corresponding **S3D Value**.

HeatTracingMediumCodeListMap

The **HeatTracingMediumCodeListMap** sheet contains codelisted values for Smart 3D heat tracing medium. These values are mapped to their corresponding values in PDS.

S3D Value

Specifies the Smart 3D codelisted value for the corresponding Smart 3D object.

PDS Value

Specifies the PDS codelisted value for the corresponding **S3D Value**.

InstrumentModelCodeMap

The **InstrumentModelCodeMap** sheet contains Smart 3D part identifiers (such as part numbers or tags) for Smart 3D piping instruments. These values are mapped to their corresponding model codes in PDS using the **DimensionalDataMapForInstrument** sheet, which contains additional attribute definitions. For more information, see *DimensionalDataMapForInstrument* (on page 59).

S3D Identifier

Specifies the Smart 3D part number or tag for the Smart 3D instrument.

PDS Model Code

Specifies the PDS model code value for the corresponding **S3D Identifier**.

InsulationPurposeCodelistMap

The **InsulationPurposeCodelistMap** sheet contains codelisted values for Smart 3D insulation purpose. These values are mapped to their corresponding insulation purpose values in PDS.

S3D Value

Specifies the Smart 3D codelisted value for the corresponding Smart 3D object.

PDS Value

Specifies the PDS codelisted value for the corresponding **S3D Value**.

MaterialsGradeCodeListMap

The **MaterialsGradeCodeListMap** sheet contains codelisted values for Smart 3D materials grades. These values are mapped to their corresponding material grades in PDS.

S3D Value

Specifies the Smart 3D codelisted value for the corresponding Smart 3D object.

PDS Value

Specifies the PDS codelisted value for the corresponding **S3D Value**.

CodeListValueDescription

Specifies the short description of the type of material and its grade.

OptionCodeCodeListMap

The **OptionCodeCodeListMap** sheet contains codelisted values for Smart 3D object option codes. These values are mapped to their corresponding option code in PDS.

S3D Value

Specifies the Smart 3D codelisted value for the corresponding Smart 3D object.

PDS Value

Specifies the PDS codelisted value for the corresponding **S3D Value**.

CodeListValueDescription

Specifies the short description for the part or object. For example, **LWN**.

LongDescription

Specifies a detailed description of corresponding **CodeListValueDescription**.

PipingCommodityTypeCodeListMap

The **PipingCommodityTypeCodeListMap** sheet contains codelisted values for Smart 3D piping commodity codes. These values are mapped to their corresponding piping commodity code values in PDS.

S3D Value

Specifies the Smart 3D codelisted value for the corresponding Smart 3D object.

PDS Value

Specifies the PDS codelisted value for the corresponding **S3D Value**.

CodeListValueDescription

Specifies the short description for the part or object. For example, **BAL3W**.

LongDescription

Specifies a detailed description of corresponding **CodeListValueDescription**. Example, **3-way ball valve**.

ReportingTypeCodeListMap

The **ReportingTypeCodeListMap** sheet contains codelisted values for Smart 3D construction status. These values are mapped to their corresponding construction status values in PDS.

S3D Value

Specifies the Smart 3D codelisted value for the corresponding Smart 3D object.

PDS Value

Specifies the PDS codelisted value for the corresponding **S3D Value**.

CodeListValueDescription

Specifies the description of the reporting type for corresponding codelist value.

ScheduleThicknessCodeListMap

The **ScheduleThicknessCodeListMap** sheet contains codelisted values for Smart 3D material thickness. These values are mapped to their corresponding thickness values in PDS.

S3D Value

Specifies the Smart 3D codelisted value for the corresponding Smart 3D object.

PDS Value

Specifies the PDS codelisted value for the corresponding **S3D Value**.

CodeListValueDescription

Specifies the thickness of corresponding codelist value.

StressRequirementsCodeListMap

The **StressRequirementsCodeListMap** sheet contains codelisted values for Smart 3D stress requirements. These values are mapped to their corresponding stress requirement values in PDS.

S3D Value

Specifies the Smart 3D codelisted value for the corresponding Smart 3D object.

PDS Value

Specifies the PDS codelisted value for the corresponding **S3D Value**.

CodeListValueDescription

Specifies the thickness of corresponding codelist value.

SpecialtyModelCodeMap

The **SpecialtyModelCodeMap** sheet contains Smart 3D part identifiers (such as part numbers or tags) for Smart 3D piping specialties. These values are mapped to their corresponding model codes in PDS using the **DimensionalDataMapForSpecialty** sheet, which contains additional attribute definitions. For more information, see *DimensionalDataMapForSpecialty* (on page 58).

S3D Identifier

Specifies the Smart 3D part number or tag for the Smart 3D specialty.

PDS Model Code

Specifies the PDS model code for the corresponding **S3D Identifier**.

MapType

Defines the map type of the attribute. Acceptable values are as follows:

- **NameDef** - Maps the S3D attribute directly to corresponding PDS attribute. For example, there is an attribute named **NPD** in the source system and one named **NominalDiameter** in the destination system. As the source and destination attribute descriptions are similar, both the attributes are mapped name to name and transferred directly. By default, if no **MapType** is specified, **NameDef** is used.
- **ValueDef** - Maps the codelisted value of an attribute before it is transferred.
- **AdditionalAttributeDef** - Used when it is necessary to create new or additional attributes for the value of a given attribute.

SheetName

Defines the name of the sheet in the **S3DPDSExport.xls** workbook that contains S3D and corresponding PDS codelisted values for the attributes.

WeldTypeCodeListMap

The **WeldTypeCodeListMap** sheet contains codelisted values for Smart 3D weld types. These values are mapped to their corresponding weld type values in PDS.

S3D Value

Specifies the Smart 3D codelisted value for the corresponding Smart 3D object.

PDS Value

Specifies the PDS codelisted value for the corresponding **S3D Value**.

Index

A

Appendix
Export to PDS Workbook • 45
ApprovalStatusCodeListMap • 78

C

CableTrayComponentAttrsMap • 70
CableTrayOccurAttrsMap • 68
CablewayAttrsMap • 71
CIS2Import.ma • 42
CleaningRequirementsCodeListMap • 78
CoatingTypeCodeListMap • 78
Codelist Translation Maps • 77
ComponentCommodityNames • 56
ConduitComponentAttrsMap • 70
ConduitOccurAttrsMap • 69
Configure the PDS Export Initialization File • 19
ConstructionStatusCodeListMap • 78
CPPipeNozzleMap • 47
CPSmartEquipmentMap • 46
Create FrameWorks Plus Subprojects • 38
Create Models from ASCII Files • 41
Create the PDS Project • 37
CSPSEquipFoundationMap • 61
CSPSFootingMap • 60
CSPSHandrailMap • 63
CSPSLadderMap • 62
CSPSStairMap • 61
CStructCutoutContourMap • 64

D

Define Matching Model Seed Files • 38
Define Matching Reference Data • 38
DesignResponsibilityCodeListMap • 79
DesignStandardCodeListMap • 79
DimensionalDataMapForInstrument • 59
DimensionalDataMapForSpecialty • 58

E

Edit Hierarchy Mapping File • 26
Edit Tab (Export to PDS Dialog Box) • 23
Electrical Translation Maps • 67
EndPreparationCodeListMap • 79
EndPreparationPDSCodeListMap • 57

EndStandardCodeListMap • 80
EqpDivisionCodeListMap • 79
EqpGlobalsMap • 48
Equipment Translation Maps • 45
EquipmentClassMap • 46
EquipmentHierarchy • 72
Export Options • 16
Export Smart 3D Models • 28
Export Structural Hierarchy from Smart 3D to PDS • 26
Export Tab (Export To PDS Dialog Box) • 24
Export to PDS Dialog Box • 22
Export to PDS Workflow • 9
Exporting Labels from Smart 3D to PDS • 35
Exporting Smart 3D Electrical Attributes to PDS • 32
Exporting Smart 3D HVAC Attributes to PDS • 29
Extract or Update a Hierarchy Mapping File • 25
Extract Tab (Export To PDS Dialog Box) • 22

F

FabricationCategoryCodeListMap • 80
FluidCodeCodeListMap • 80

G

Generate a PDS Project Configuration File • 28
Generate Tab (Export to PDS Dialog Box) • 23
GeometryStandardsCodeListMap • 81

H

HeatTracingMediumCodeListMap • 81
HeatTracingReqrmntsCodeListMap • 81
Hierarchy Mapping Workbook • 27
Hierarchy Translation Maps • 72
HVAC Translation Maps • 65
HVACClassMap • 65
HVACDuctComponentAtrsMap • 67
HVACDuctPartAttrsMap • 66
HVACHierarchy • 76

I

Import Structural Data into FrameWorks Plus • 42
Importing a CIS/2 file • 44
Importing Data into PDS • 41
InstrumentModelCodeMap • 81
InsulationPurposeCodeListMap • 82

L

Limitations when Exporting from Smart 3D to PDS • 13

M

MaterialsGradeCodeListMap • 82

O

OptionCodeCodeListMap • 82

P

PipeComponentAttrsMap • 52
PipeInstrumentAttrsMap • 52
PipePartAttrsMap • 51
PipeSegmentAttrsMap • 50
PipeSpecialityAttrsMap • 53
PipeSupportAttrsMap • 54
Piping Translation Maps • 49
PipingClassMap • 50
PipingCommodityTypeCodeListMap • 83
PipingGlobalsMap • 55
PipingHierarchy • 73
Points to Consider • 11
Preface PDS Export Guide • 7
Preparing PDS for Import • 37
Preparing Smart 3D for Export • 16

R

RaceWayHierarchy • 75
Reference Equipment Models to Piping Models • 44
ReportingTypeCodeListMap • 83
Run Piping Model Builder • 44
RWAYClassMap • 68

S

ScheduleThicknessCodeListMap • 83
ScheduleThicknessPDSCodeListMap • 57
SpecialtyModelCodeMap • 84
SPSWallPartMap • 64

StressRequirementsCodeListMap • 84
StructuralEquipmentHierarchy • 75
Structure Translation Maps • 59
StructureClassMap • 60
StructureHierarchy • 74

T

TapOptionCodeMap • 57

W

WeldTypeCodeListMap • 84
What's New in PDS Export • 8

